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DISEASES CAUSED BY BACTERIA AND FUNGI

COWAN, S. T., SHAW, C. & WILLIAMS, R. E. O. (1954). **Type strain for *Staphylococcus aureus* Rosenbach.**—*J. gen. Microbiol.* **10,** 174-176. [Authors' summary modified.] 2161

The authors described a strain isolated from a human source and proposed it as the type for the species *Staph. aureus* Rosenbach in place of the one chosen by Shaw *et al.* (1951) which has some characters of animal strains.

HAUGE, S. (1953). Les intoxications alimentaires de l'homme d'origine animale, par le staphylocoque entérotoxique. **[Food poisoning in man caused by staphylococcus toxin.]** —*Bull. Off. int. Epiz.* **40,** May. pp. 256-264. [English summary.] 2162

A conventional account of food poisoning due to staphylococcus enterotoxin.

—G. V. LAUGIER.

ROSATI, T. (1953). Le staphylocoque entérotoxique dans les aliments d'origine animale, source d'intoxication chez l'homme. **[Food poisoning caused by staphylococcus toxin in man.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 265-294. [English summary.] 2163

R. gave a detailed account of the " food poisoning " syndrome and of the enterotoxins responsible. He enumerated foods of animal origin which have been implicated in Italy. He described bacteriological examination for the purpose of establishing the presence of staphylococcus toxin and outlined prophylactic measures.—G. V. LAUGIER.

MARTIN, R. & CHABBERT, Y. (1953). La lutte engagée entre le staphylocoque et les antibiotiques. **[Staphylococci and antibiotics.]** —*Bull. Acad. nat. Méd.* **137,** 241-248. 2164

The authors gave figures showing the percentage incidence of penicillin-resistant strains of staphylococci isolated from human patients in towns and in hospitals in France from 1944 to 1951-52. From 10% in towns and 20% in hospitals the incidence had increased to 65% and 75–80% respectively, but there had been a recent gradual increase in sensitivity to antibiotics. Preliminary hospital tests with erythromycin (a product of *Streptomyces erythreus*) had given promising results *in vitro* against staphylococci resistant to other antibiotics and satisfactory serum levels of the antibiotic were obtained in patients given 0·20 g. every 6 hours.

—F.E.W.

HARBOUR, R. G. H. & EDWARDS, A. (1953). **Mutation of different bacteriophage types of staphylococci to streptomycin resistance.**—*Aust. J. exp. Biol. Med. Sci.* **31,** 561-565. [Authors' summary copied *verbatim*.] 2165

Comparison of mutation rates to streptomycin resistance of different phage groups of pathogenic staphylococci reveals marked differences between these groups. These differences may account for the high proportion of antibiotic-resistant strains isolated which belong to the highly mutable 6/47 phage group. Mutation rates to streptomycin dependence do not show such large differences between groups.

MARCH, F. & RODWAY, H. E. (1954). **Bacteriology of air and dust in a maternity hospital.** —*Lancet.* **266,** 125-127. [Abst. from authors' comments.] 2166

Dust-suppressive measures, such as damp dusting and sweeping, the oiling of linoleum-covered and wooden floors and the use of disinfectants sprayed into the air, were ineffective alone in reducing the dispersal of dust-borne organisms into the air during bed-making and ward activity.

The disinfection of blankets with fixanol B (a quaternary disinfectant) and of mattresses and pillows in a formol sterilizing machine, was effective in reducing the bacterial contamination of ward dust and the risks of cross-infection; but

despite this it did not lead to a decrease in the number of nasal carriers of *Staph. pyogenes* among the infants born in the hospital.

FORNEY, J. E. (1954). **The sensitization of guinea pigs to *Micrococcus pyogenes* var. *aureus* in the presence of the " wax " of acid-fast bacilli.**—*Amer. Rev. Tuberc.* **69,** 241-246. [French and Spanish summaries. Abst. from author's summary.] 2167

F. found that g. pigs could be rendered hypersensitive to whole cells of *M. pyogenes* var. *aureus* when the " wax " of human type tubercle bacilli or of *Mycobact. smegmatis* was administered simultaneously. This hypersensitivity was demonstrable by an increased skin reactivity to injection with staphylococcal cells and by a reaction in the cornea following injection directly into that tissue.

TAJIMA, M. & UEDA, A. (1953). **[The microscopical observations on the four cases of purulent encephalomyelitis in horses affected with strangles.]**—*Vet. Res., Japan.* **1,** 41-48. [In Japanese. Abst. from English summary.] 2168

Four horses showed nervous symptoms (depression or excitement, incoordination, rigidity of the neck) during the course of strangles. In 3 of these purulent meningoencephalitis, and in the fourth a brain abscess was found at P.M. examination of the nervous system. These lesions were apparently metastases from suppurative processes in other parts of the body; in one case there was evidence of direct spread of infection from an abscess involving the frontal bone.—R.M.

STAMP. (1953). **Studies on O/R potential, pH and proteinase production in cultures of *Streptococcus pyogenes* in relation to immunizing activity.**—*Brit. J. exp. Path.* **34,** 347-364. 2169

Some Group A streptococci produce proteinase and this interferes with the protective effect on mice of vaccines prepared from such cultures. Conditions of growth which inhibit proteinase production improve vaccines prepared from cultures of weakly proteinase-producing strains, but not those prepared from strong proteinase producers grown under the same conditions.—J. E. SMITH.

SMITH, H. PRESTON. (1952). Fiebre de las alpacas. **[Streptococcal infection in alpacas.]**—*Rev. Inst. nac. Biol. anim., Lima.* **3,** Nos. 4 & 5. pp. 91-95. 2170

An account of a disease of alpacas in the mountainous parts of Peru. Study of the disease presents difficulties as alpacas are reared only in remote rather inaccessible districts 4–5,000 metres above sea level. It occurs in three forms: acute, subacute and chronic, respectively, in unweaned young, in animals 1–5 months old, and in adults.

The author isolated *Str. pyogenes* (Edwards Type A). Successive passages in rabbits were found necessary to maintain virulence; after 3 such passages the organism caused death within 14 hours. Besides the rabbit, the " pericote," a local small species of mouse (scientific name not given) is susceptible; g. pigs are highly resistant. The infection was set up in healthy alpacas by inoculation of heart blood from infected rabbits. The author recommended treatment with hyperimmune serum.—F.E.W.

JACOX, R. F. (1953). **Streptococcal β-glucuronidase.**—*J. Bact.* **65,** 700-705. 2171

An account of studies on a new enzyme, β-glucuronidase, from β-haemolytic streptococci. It is distinct from that produced by *Bact. coli* and is not a constant character of group A streptococci.—J.D.

COTCHIN, E. & HAYWARD, A. (1953). **Streptococcal endocarditis in a pig following intravenous injection of an organism from a natural case.**—*J. comp. Path.* **63,** 68-73. [Authors' summary modified.] 2172

Two pigs were each given a single i/v dose of an α-haemolytic streptococcus recovered from a natural case of porcine endocarditis, and two others were given repeated i/v doses. Lesions of endocarditis were found macroscopically in one, and histologically in the other pig of the pair receiving the single doses. Arthritis was found in one pig from each pair.

MURPHY, J. M. & STUART, O. M. (1954). **The treatment of *Streptococcus agalactiae* infection of the bovine udder by intramuscular administration of penicillin.**—*Cornell Vet.* **44,** 139-147. 2173

Four cows infected with *Str. agalactiae* were each cured by a total of 42 mega units of penicillin (3 mega at 12-hourly intervals). The cows were re-infected and again cured by this treatment. Foremilk taken 5 hours after injection of penicillin contained 0·1 unit per ml. The strain of *Streptococcus* used was sensitive to 0·05 units penicillin per ml. *in vitro,* and *Corynebacterium bovis,* responsible for a concomitant infection which was not affected by treatment, was sensitive *in vitro* to 0·25 u. per ml.—A. SEAMAN.

Auclair, J. E. (1954). **Stimulation of certain bacteria by raw milk.** [Correspondence.]—*Nature, Lond.* **173**, 491. 2174

Certain concentrations of raw milk have a stimulating effect, due possibly to traces of sulphur compounds on *Streptococcus agalactiae* and other bacteria, milk from quarters affected with mastitis having a greater effect than that from healthy quarters. Pre-partum colostrum has a very marked effect, post-partum colostrum much less.—J. E. Smith.

Jørgensen, K. L. & Livoni, P. (1951). Patteopstikning og streptokokinfektion. [**Surgical treatment of the teats and streptococcal infection.**] —*Nord. VetMed.* **3**, 516-524. [In Danish. English and German summaries.] 2175

Bacteriological examinations were made on milk samples collected before and after a constriction in a teat had been treated surgically. Infection by streptococci was found in 15 out of 43 cases before operation. On examination 14–31 days later, streptococci were found in 32 cases. Similar investigations were made in 89 cases in which the surgical treatment was followed by a preventive treatment with penicillin; 100,000 i.u. were injected into the quarter and a bougie soaked in penicillin soft paraffin (10,000 i.u.) was introduced into the cut sphincter. Streptococci were found in milk from the affected quarter in 23 of these cases before operation and at the control examination in 17 cases.—F.E.W.

Jacquet, J. (1953). Le traitement des infections de la mamelle de la vache par les antibiotiques, et ses conséquences. [**The use of antibiotics for mammary infections in cows.**] —*Rec. Méd. vét.* **129**, 803-861. 2176

A general review of the problems resulting from the extensive use of antibiotics in mammary infections in cows.—J.D.

Lesbouyries, G. (1953). Mammites chroniques de la vache. [**Chronic mastitis in cattle.**]—*Rec. Méd. vét.* **129**, 863-884. 2177

A discussion on literature on the various aspects of chronic mastitis in cattle.—J.D.

Corrias, A. (1953-54). La vibriosi genitale dei bovini nel quadro della sterilità microbica. [*Vibrio fetus* **infection in cattle.**]—*Progr. vet., Torino.* **8**, 844, 846-848, 850 & 852; **9**, 59-60, 62-64, 66 & 68-70; 93, 95, 97-98 & 100. 2178

An account of the history, geographical incidence, aetiology, pathogenesis, diagnosis, treatment and prophylaxis of *V. fetus* infection in cattle. There is no bibliography.—R.M.

Anon. (1953). Profilassi della vibriosi genitale dei bovini. [**Control of** *Vibrio fetus* **infection in cattle.**]—*Zootec. e Vet.* **8**, 356-359. 2179

A circular issued by the High Commissariat for Hygiene and Public Health, Italy, on the diagnosis, treatment and control of *V. fetus* infection in cattle, occasioned by some outbreaks of the disease in imported cows. It recommends treatment of infected cows and bulls with antibiotics.—R.M.

Frank, A. H. & Bryner, J. H. (1954). **Observations on vibriosis of cattle in relation to impaired fertility.** — *Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 165-175. 2180

A conventional note.

Schönberg, F. (1953). Die Bedeutung schwer abtötbarer Mikroorganismen, insbesondere aerober Sporenbildner für die Fleisch-, Fisch- und Milchwirtschaft und Vorschläge zu ihrer wirksamen Bekämpfung. [**Importance of aerobic spore-forming bacteria in foods of animal origin.**]—*Dtsch. tierärztl. Wschr.* **60**, 351-353. 2181

An account of spoilage of meat, milk and fish products by the proteolytic action of commonly-occurring spore-forming aerobic bacilli. —W. G. Siller.

Borisovich, Y. F. (1954). [**Recovery of a filtrable form of anthrax bacillus from anthrax antisera.**]—*Veterinariya, Moscow.* **31**, No. 1. pp. 29-33. [In Russian.] 2182

B. claimed that from each of four lots of anthrax antiserum and three lots of precipitated anthrax antiserum he had isolated a filtrable, formalin-resistant form of the anthrax bacillus which reverted to its conventional form after culture and passage. He offered no explanation other than that this phenomenon was due to factors beyond the knowledge of present-day science.—F. A. Abbey.

Evans, D. G. & Shoesmith, J. G. (1954). **Production of toxin by** *Bacillus anthracis.*— *Lancet.* **266**, 136. 2183

A virulent strain of *B. anthracis,* grown *in vitro* under suitable conditions, produces a thermolabile toxin, intradermal injection of which into rabbits gives rise to lesions strikingly similar to those seen in naturally occurring cutaneous anthrax.—W. R. Bett.

Bailey, W. W. (1953). **Anthrax—response to terramycin therapy.**—*J. Amer. vet. med. Ass.* **122**, 305-306. 2184

One hundred and seventy cattle and an unstated number of horses developed subacute

anthrax, 4 to 20 weeks after vaccination with anthrax spore vaccine. Good results were claimed for treatment of these cases with terramycin i/v, alone or with penicillin.

—J. E. Smith.

Gallo, P. (1952). Intentos de inmunización en el ántrax con antígenos sin desnaturalizar. **[Immunization experiments with anthrax antigen.]**—*Rev. Med. vet., Caracas.* **11,** Nos. 3 & 4. pp. 211-216. [English summary.] **2185**

An account of tests on small groups of mice, g. pigs and rabbits of an antigen prepared from live 24-hour R cultures of an attenuated strain of *B. anthracis*. There was a slight increase in resistance to challenge with virulent organisms in immunized mice over non-immunized controls, but not in the case of g. pigs or rabbits.

—F.E.W.

Déom, J. & Mortelmans, J. (1953). Influence de la concentration en peptone sur la culture et la sporulation de *Bacillus anthracis*. **[Effect of the peptone content of the media on the growth and sporulation of** *B. anthracis***.]**—*Ann. Inst. Pasteur.* **85,** 671-674. **2186**

The authors studied two strains of *B. anthracis,* C3 and C4, used in the preparation of spore vaccines. They showed that, in media devoid of peptone, growth is poor and that sporulation is not directly influenced by peptone concentration. The evolution of sporulation was much more uniform with strain C3. They concluded that reduction of peptone in media for spore vaccine production is of no practical value and may exercise an unfavourable influence on the quantity of spores harvested.

—G. V. Laugier.

Buss, W. (1953). Die Serodiagnose der Rindertuberkulose mit Hilfe von Meinicke-Extrakten. **[The diagnosis of TB. in cattle by the Meinicke flocculation test.]**—*Rindertuberkulose.* **2,** 81-88. **2187**

The Meinicke flocculation reaction detected 94% of cattle found P.M. to have lesions of TB. and also a proportion of infected non-reactors to the tuberculin test; the complement-fixation test was less reliable than the Meinicke test.—J. E. Smith.

Finzi, G. (1953). Nature et mécanisme de la réaction à la tuberculine. (Immunité antitoxique vis-à-vis de la tuberculose.) **[Nature and mechanism of the tuberculin reaction.]**—*Bull. Acad. vét. Fr.* **26,** 407-416. **2188**

F. reviewed his work on exotuberculin [*V.B.* **5,** p. 255; **7,** p. 406; **9,** p. 553] and repeated the theory that the tuberculin reaction is a toxin (exotuberculin)—antitoxin (antituberculin) reaction.—R.M.

Lauterbach, D. (1953). Die Abgrenzung der Tuberkulinreaktionen gegen aspezifische Reaktionen. **[Non-specific reactions to the tuberculin test.]**—*Die Rindertuberkulose.* **2,** 89-95. **2189**

Using the single comparative test (mammalian and avian types of tuberculin given i/d) L. found about 3% non-specific reactors in TB.-free herds. He described these non-specific reactions as weak and variable where mammalian type tuberculin was used: the reaction to avian type tuberculin was similar in character though sometimes more pronounced.

—E. A. Hirsch.

Fras, A. & Tunkl, B. (1953). Izlučivanje klica tuberkuloze putem mlijeka kod krava s pozitivnom tuberkulinskom reakcijom. **[Incidence of tubercle bacilli in the milk of cows with positive tuberculin test.]** — *Veterinaria, Sarajevo.* **2,** 329-331. [In Croat. Abst. from English summary.] **2190**

Tubercle bacilli were isolated from the milk of 6 cows out of 42 which reacted to the tuberculin test. TB. lesions of the mammary glands were not seen in any of them at P.M. examination.—R.M.

Chodkowski, A. (1953). Obserwacje reakcji alergicznych u bydła pod wpływem różnych tuberkulin. **[Allergic reactions to various tuberculins, in cattle.]**—*Méd. vét., Varsovie.* **9,** 437-440. [In Polish. English and Russian summaries. Abst. from English summary.] **2191**

C. compared the reactions in cattle to Weybridge P.P.D. avian, Weybridge P.P.D. mammalian, and old tuberculins, respectively.

—R.M.

Long, D. A. (1954). **Influence of protein metabolism on bacterial allergy. Its relation to cortisone desensitization.**—*Lancet.* **266,** 231-234. [Author's summary slightly modified.] **2192**

Using the response to i/d injection with tuberculin as a measure of allergic hypersensitivity in albino g. pigs injected with B.C.G., it was found that: (1) skim milk antagonized desensitization by ascorbic acid; (2) methionine antagonized desensitization by ascorbic acid; (3) ethionine, an antimetabolite to methionine, antagonized the " cabbage factor " and skim milk, and allowed desensitization by ascorbic acid to take place; (4) ethionine had no effect on

sensitivity in g. pigs deficient is ascorbic acid; (5) reduced glutathione prevented desensitization by ethionine.

The action of cabbage in antagonizing desensitization by ascorbic acid is almost certainly due to sulphur-containing amino-acids, probably methionine; cortisone antagonizes this effect.

L. discussed the close analogy between the actions of alloxan and of cortisone in the light of the pharmacological actions of both. A hypothesis to explain the mode of action of cortisone in depressing sensitivity to tuberculin in the g. pig is that cortisone interferes with the anabolism of glutathione in the course of a general interference with protein synthesis, associated with an increased breakdown of sulphur-containing and other amino-acids; the resulting fall in glutathione facilitates the oxidation of ascorbic acid to dehydro-ascorbic acid, the latter inactivating phosphoglucomutase and increasing the concentration in the tissues of glucose-l-phosphate, which is intimately concerned with desensitization [Cornforth & Long (*V.B.* 23, 1962)].

Bosanquet, F. D., Daniel, P. M. & Vollum, R. L. (1953). **The tuberculin reaction of the cerebral meninges in the guinea-pig.**—*Brit. J. exp. Path.* 34, 376-383. [Abst. from authors' summary.] 2193

In the study of the tuberculin reaction of the leptomeninges of g. pigs purified protein derivative was injected into the cisterna magna of tuberculin-sensitive animals, and the meninges were examined histologically at varying intervals up to 48 hours later. A cellular exudate was present in the meninges of tuberculin-sensitive animals, but not in non-sensitized animals, nor in animals that had been given an injection of saline. It was therefore concluded that the leptomeninges of g. pigs are capable of giving a tuberculin reaction.

This reaction is predominantly mononuclear in character. It is not produced by intraperitoneal injections of tuberculin.

Tubercle bacilli appear to cause a similar reaction in 24 hours in both sensitized and non-sensitized g. pigs.

The authors discussed the relationship of this reaction in g. pigs to tuberculous meningitis in man.

Jacoby, F. & Marks, J. (1953). **On the tuberculin sensitivity of epithelial cells *in vitro*.** —*J. Hyg., Camb.* 51, 541-545. [Authors' summary copied *verbatim*.] 2194

Purified tuberculin in concentrations equivalent to 1/20 standard Old Tuberculin had no apparent effect on the outgrowth *in vitro* of liver and kidney epithelium derived from sensitized guinea-pigs.

Goerttler, V. (1954). Die bovine Tuberkulose als Quelle menschlicher Tuberkuloseerkrankungen. **[TB. in cattle as a source of human infection.]** — *Berl. Münch. tierärztl. Wschr.* 67, 21-23. 2195

Discussion on infection of human beings with a bovine type of *M. tuberculosis*.

—W. G. Siller.

Ježić, J. (1953). Zašto na zapadu tuberkuloza goveda raste, a tuberkuloza ljudi jenjava. **[Reasons for the increase of TB. in cattle and the decrease of TB. in man in Western Europe and the U.S.A.]**—*Veterinaria., Sarajevo.* 2, 363-383. [In Croat. Abst. from English summary.] 2196

J. attempted to show that an increase in alkaline components of the diet was indirectly responsible for lowering the incidence of TB. in human beings, and that selection of cattle for their milk yield was responsible for an alleged rise in the incidence of TB. in cattle of countries west of the " iron curtain ".—R.M.

Lurie, M. B., Zappasodi, P., Dannenberg, A. M., Jr. & Cardona-Lynch, E. (1953). **The effect of cortisone and ACTH on the pathogenesis of tuberculosis.**—*Ann. N.Y. Acad. Sci.* 56, Art. 4. pp. 779-792. 2197

In rabbits treated with pharmacological doses of cortisone acetate (2 mg./kg. body wt. on alternate days) and infected aerially with human type tubercle bacilli, lung tubercles were more numerous but smaller than in infected, untreated controls; the local inflammatory reaction, the lymphatic and vascular spread and the tuberculin reaction were reduced, while the number of bacilli in the tubercles was increased. Withdrawal of cortisone caused a serious or fatal activation of the disease; untreated controls recovered. A.C.T.H., however, produced some benefit in strains of rabbit with low adrenal function.

In a closely-reasoned discussion the authors related these findings to the well known antiphlogistic and other effects of cortisone.

—J. E. Smith.

Pallaske, G. (1953). Die Bedeutung der vergleichenden Pathologie für das Wesen und die Bekämpfung der Tuberkulose-Erkrankung. **[Comparative pathology of TB.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 167-172. [In German. English and French summaries.] 2198

P. discussed the clinical significance of

different stages of *M. tuberculosis* infection and of different pathological types of the disease in domestic animals.—R.M.

FRANCIS, J. (1953). **The treatment of tuberculosis in the guinea-pig with streptomycin alone or in combination with dapsone, thiosemicarbazones, PAS, or sodium iodide.**—*Brit. J. Pharmacol.* **8,** 259-262. 2199

Streptomycin caused regression of tuberculous lesions induced in g. pigs, this action being increased by association of the antibiotic with *p*-acetylaminobenzaldehyde thiosemicarbazone (thiacetazone), *p*-ethyl-sulphonylbenzaldehyde thiosemicarbazone (E.B.T.), 4:4′-diaminodiphenylsulphone (dapsone), or P.A.S., dapsone being best. Sodium iodide had no effect. P.A.S. did not enhance the action of streptomycin in TB. in dogs or in man.

—F. R. PAULSEN.

WOLINSKY, E. & STEENKEN, W., JR. (1953). **Infrequent appearance of drug resistant strains of tubercle bacilli in experimental animals treated with streptomycin and *p*-amino-salicylic acid.** — *J. Bact.* **66,** 229-237. 2200

Streptomycin-resistance was rare in strains of *M. tuberculosis* recovered from experimental g. pigs, rabbits and mice treated with streptomycin or streptomycin together with P.A.S. This is of course contrary to the experience with strains from streptomycin - treated human patients.—J. E. SMITH.

FRITSCHE, K. (1953). Ein Beitrag zur BCG-Schutzimpfung bei Kälbern. **[B.C.G. vaccination of calves.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 123-128. [In German. English and French summaries.] 2201

F. vaccinated 290 calves with B.C.G., the results not yet being complete. Living B.C.G. was recovered from the lymph nodes adjacent to the site of inoculation in 2 cattle slaughtered 2 and 5 months respectively after vaccination, but not after 9 months. He found that it was possible to differentiate vaccinated from tuberculous cattle by the i/d tuberculin test employing B.C.G. tuberculin and mammalian type tuberculin.—R.M.

ØRSKOV, J. & ENGBOEK, H. C. (1952). **Germination and growth of BCG-vaccine followed by the direct agarmicroscopy on Dubos' media. I.**—*Acta path. microbiol. scand.* **30,** 395-398. [In English.] 2202

Using Dubos' oleic acid medium and a modified Dubos' medium, the authors studied the numbers of viable elements in various B.C.G. vaccines. They used a technique of direct agar microscopy, examining the bacterial growth at the surface of seeded plates.—W. R. BETT.

GRÄUB, E., SAXER, E. & VONARBURG, H. (1953). Versuche mit dem P-Stamm zur Schutzimpfung gegen Rindertuberkulose. **[Vaccination of cattle against TB. with the attenuated live vaccine (" strain P ") described by Gräub.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 133-139. [In German. English and French summaries.] 2203

The authors reviewed work on the vaccination of cattle against TB. with the attenuated live vaccine (" strain P ") described by Gräub. Field experiments are in progress in more than 200 herds in which, because the percentage of reactors is 70–100, vaccination of calves appears to be a more economical method of control than the slaughter of reacting adult cattle.—R.M.

BLUHM, I. (1952). **The influence of immune and normal human serum on the respiration of tubercle bacilli.**—*Acta med. scand.* Suppl. No. 275. pp. 28. [In English.] 2204

A preliminary report on 130 experiments. Serum samples from tuberculin negative, and from tuberculin positive persons from an infected environment but free from symptoms of the disease, were mixed with 30 mg. amounts of a highly virulent strain (1354/43) of human type *M. tuberculosis,* and the respiration of the tubercle bacilli was measured over a 4-hour period in the water bath at 37°C. using a Warburg's apparatus, and the procedure described by Zetterberg [*V.B.* **20,** 1199]. The oxygen uptake was less in positive serum than in negative serum in 118 of the experiments. B. suggested the existence of a respiration-inhibiting factor in the serum of positive reactors to the tuberculin test which might be due to bacteriostasis, to bactericide or to a combination of both.

—F.E.W.

MANOCCHIO, I. (1953). Sopra il comportamento dell-istaminemia in polli sani e in polli colpiti da TBC spontanea. **[Histamine content of the blood in healthy and tuberculous fowls.]**—*Arch. Vet. Ital.* **4,** 225-231. [English, French and Spanish summaries. Abst. from English summary.] 2205

M. compared the histamine content of the blood of tuberculous and healthy fowls. The level in the tuberculous birds was markedly lower.—A.S.

KARLSON, A. G. & FELDMAN, W. H. (1953). **Mycobacteria of human origin resembling *Mycobacterium avium*.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 159-163. [In English. French and German summaries.] **2206**

Acid-fast bacilli which were isolated from the sputum or at P.M. examination of 5 cases of pulmonary silicosis in human beings, possessed the cultural and biological properties of avian type *M. tuberculosis*.—R.M.

PENSO, G., CASTELNUOVO, G., GAUDIANO, A., PRINCIVALLE, M., VELLA, L. & ZAMPIERI, A. (1952). Studi e ricerche sui Micobatteri. VIII. Un nuovo bacillo tubercolare: il " Mycobacterium minetti " n. sp., studio microbiologico e patogenetico. [***Mycobacterium minetti* n. sp. isolated from cattle; its cultural characters and pathogenicity.**]—*R. C. Ist. sup. Sanit.* **15,** 491-548. [Abst. from abst. in *Bull. Inst. Pasteur.* **51,** 60-61. (1953).] **2207**

The authors studied four strains of an acid-fast organism which had been isolated by F. C. Minett in 1932 from cattle which reacted to avian type tuberculin, johnin and in some cases to bovine type tuberculin. They described in detail cultural characters and pathogenicity for rats, g. pigs, rabbits, monkeys and calves. The lesions were particularly localized in the lymph nodes and kidneys and the organisms could be recovered from the urine. In the rat, g. pig and rabbit there was a trophism for the middle and internal ear with the development of otitis. In calves the lymph nodes were hypertrophied.

The histology of the lesions is described, a notable feature being the rarity of giant cells.

The authors consider that the differences between this organism and *M. tuberculosis* var. *avium* are sufficient to constitute a new species which they propose to name *M. minetti*.—M.C.

I. GIBSON, J. B. (1953). **Infection of the lungs by " saprophytic " mycobacteria in achalasia of the cardia, with report of a fatal case showing lipoid pneumonia due to milk.**—*J. Path. Bact.* **65,** 239-251. [Abst. from author's summary.] **2208**

II. LOMINSKI, I. & HARPER, E. M. (1953). **An unidentified acid-fast bacillus (*Mycobacterium* sp., strain Glasgow) found in human sputum and lung lesions.**]—*Ibid.* 253-254. [Abst. from authors' summary.] **2209**

I. A human being developed achalasia (failure of the oesophagus to relax), and died from suppurative broncho-pneumonia due to a strain of acid-fast bacillus (strain Glasgow) of an unnamed species of *Mycobacterium*. Fat aspirated into the lungs was identified as that of milk. G. suggested that the presence of the lipoid lesion facilitated the development of the acid-fast infection. Lesions produced in mice inoculated with the strain were similar to those described with some other members of the " saprophytic " group of mycobacteria, but the virulence of the new strain was exceptional.

It was suggested that aspiration of fat took place in four other reported instances of achalasia where a similar infection developed and that in those cases also lipoid pneumonia, although unrecognized, made mycobacterial infection possible.

II. The authors studied the acid-fast organism described by Gibson (I *supra*). It was highly pathogenic for mice, but non-pathogenic for g. pigs, rabbits, fowls and frogs. They suggested that it should be named *Mycobacterium* sp., strain Glasgow.

PENSO, G. (1949). **The paratubercle bacilli.**—*Bull. W.H. Org.* **2,** 306-310. **2210**

An account of *Mycobacterium phlei, M. lacticola, M. butyricum, M. smegmatis* and *M. pellegrino,* but not of other bacteria for which the name ' paratubercle ' is used.

—W. R. BETT.

THIÉRY, J.-P. (1953). La maladie de Johne. [**Johne's disease.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 129-135. [English summary.] **2211**

A general article on Johne's disease, with emphasis on the importance of the reaction to tuberculin and on the control of the disease.

—J.D.

MEYN, A. (1953). Maladie de Johne. [**Johne's disease.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 136-145. [English summary.] **2212**

A general article on Johne's disease, with special reference to the situation prevailing in Germany. No new material.—J.D.

HOLE, N. H. (1953). **The diagnosis of Johne's disease.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 173-177. [In English. French and German summaries.] **2213**

H. discussed laboratory methods which have been used in attempts to diagnose *M. johnei* infection in cattle, and described work carried out at Weybridge on diagnosis of the disease using the complement-fixation test. Out of 330 suspected cases of Johne's disease from TB.-free herds, 94% which gave positive P.M. results were positive to the c.f. test, and 90% with negative P.M. findings were negative to the c.f. test.—R.M.

BRATKE, E. (1954). *Corynebacterium viridans* n. sp. aus dem Genitaltraktus des Rindes. **[A new species, *Corynebacterium viridans*, from the genital tract of cattle.]** — *Fortpfl. ZuchtHyg. Haustierbesamung.* **4,** 64 - 66. [English summary.] **2214**

A new species, *C. viridans,* was isolated from 30 out of 250 samples taken from the genital tract of male and female cattle in the course of artificial insemination. It was present in 27% of the samples from animals with an unfavourable preliminary report, indicating impaired vitality of the spermatozoa or an unsatisfactory fertilization rate.—W. R. BETT.

FONTANELLI, E. & CASTELLUCCI, I. (1951). Di una particolare tossiemia degli ovini sostenuta dal bacillo di Preisz-Nocard. (Corynebacterium Preisz-Nocardi.) **[*Corynebact. ovis* infection in sheep.]**—*Zooprofilassi.* **6,** 299-315. [English summary.] **2215**

An account of an outbreak of caseous lymphadenitis in a flock of sheep, caused by *C. ovis.* The peritoneal exudate and filtrates were extremely virulent for g. pigs. The organism tended to lose its virulence in broth cultures and filtrates. Penicillin treatment was effective.—L. BADIALI.

JÁGER, S. (1954). Takonykór-ellenanyagok kimutatása baktériumkivonattal szenzibilizált juhvörösvérsejtek agglutinatiópával. **[The use of the haemagglutination test for the diagnosis of glanders using sheep erythrocytes sensitized by extracts of *Pfeifferella mallei.*]** —*Mag. állator. Lapja.* **9,** 49-52. [English and Russian summaries. Abst. from English summary.] **2216**

J. described the application of the haemagglutination test to the diagnosis of glanders in horses. Twelve out of 18 cases were positive to this test, compared with only 8 positive to other serological tests.—R.M.

SATOH, H., OHBAYASHI, M. & ONO, T. (1953). **[Histopathological investigations of acute swine erysipelas.]**—*Vet. Res., Japan.* **1,** 111-124. [In Japanese. Abst. from English summary.] **2217**

An account of the histology of the lesions observed in 19 cases of *E. rhusiopathiae* infection in pigs.—R.M.

GEISSLER, S. (1953). Untersuchungen über das Vorkommen von Rotlaufbakterien in den Tonsillen gesunder Schlachtschweine. **[Presence of *E. rhusiopathiae* in the tonsils of healthy slaughter pigs.]** — *Zbl. Bakt. I.* (*Orig.*) **159,** 335-338. **2218**

Culture attempts on 75 tonsils were unsuccessful. Using mouse inoculation, *E. rhusiopathiae* was recovered from 40 of 73 tonsils: growths from a further 28 of these were too contaminated with other bacterial flora to be useful and no growth developed from another five.—R. B. HOLCOMBE.

NANI, S. (1952). Ricerche sui costituenti endotossici di *Erysipelothrix rhusiopathiae.* (Estratto e residuo secondo Boivin e Mesrobeanu.) I. **[The endotoxins of *E. rhusiopathiae.*]**—*Nuovi Ann. Ig. Microbiol.* **3,** 81-99. [English and French summaries.] **2219**

N. extracted cultures of *E. rhusiopathiae* with trichloracetic acid by the method described by Boivin and Mesrobeanu [*V.B.* **6,** p. 441]. The protein-containing sediment sensitized and immunized mice against *E. rhusiopathiae* infection, and stimulated antibody formation, to a greater extent than the supernatant fluid, which contained glycolipins. N. concluded that the endotoxins of *E. rhusiopathiae* resembled nucleoproteins.—R.M.

DRÄGER, K. & FIEGE, H. (1953). Über eine Verbesserung des Rotlauf-Adsorbat-Impfstoffes (RAI). **[Improvement of adsorbate swine erysipelas vaccine by purification.]**—*Dtsch. tierärztl. Wschr.* **60,** 125-126. **2220**

The authors prepared a purified *E. rhusiopathiae* vaccine with a very low residue of useless components. The antigen, adsorbed on aluminium hydroxide and suspended in an unnamed medium conferred early immunity.
—H. BEHRENS.

BANDARANAYAKE, A. (1953). **An outbreak of listeriosis in goslings.**—*Ceylon vet. J.* **1,** 40-42. **2221**

B. reported the first recorded occurrence in Ceylon of *Erysipelothrix* (*Listeria*) *monocytogenes* infection in goslings hatched from English eggs. Gradual loss of condition occurred when they were 3 weeks old and *E. monocytogenes* was isolated from the heart blood of 6 of the 9 birds and from the brain of one which exhibited nervous symptoms.
—A. ACKROYD.

ROINE, P., RAITO, A. & VARTIOVAARA, U. (1953). *Listeria* **infection in the guinea pig caused by feeding with aureomycin.** [Correspondence.]—*Nature, Lond.* **172,** 767. **2222**

Examination of the caecal flora of g. pigs that became fatally ill when they were given aureomycin *per os* revealed the presence in abundance of *Listeria* organisms not present in untreated controls, and a reduction in the numbers of certain other organisms which were

present in abundance in the controls. Administration of penicillin or chloramphenicol *per os* before or during aureomycin treatment prevented the development of symptoms.

—J. M. Leach.

Cohrs, P. & Köhler, H. (1952). Gibt es Wild- und Rinderseuche in Deutschland? (Ist die Anzeigepflicht für die Wild- und Rinderseuche heute noch berechtigt?) **[Haemorrhagic septicaemia in cattle in Germany : unjustified notification of the disease.]** — *Mh. prakt. Tierheilk.* **4**, 113-123 & 162-170. 2223

The authors reported on a study of 13 cases of infectious broncho-pneumonia in cattle which arose in connexion with the marketing or transport of the animals. As bipolar organisms were isolated from the animals, the cases had to be classified for the purposes of the Contagious Diseases of Animals Act as haemorrhagic septicaemia. The authors agreed with the findings of Fritsche & Radtke [*V.B.* **23**, 824] that this classification was incorrect and suggested the names " infectious broncho-pneumonia of cattle " or " infectious transport pneumonia of cattle " to describe the condition.

—J. A. Nicholson.

Prier, J. E., Thomas, R. M. & Bingham, D. A. (1953). **Intramuscular bacitracin therapy in sheep.**—*Cornell Vet.* **43**, 38-43. 2224

After a preliminary experiment to determine the blood levels of bacitracin in normal sheep at various intervals following the i/m injection of various doses of the antibiotic, the authors treated 11 cases of haemorrhagic septicaemia, one case of this disease complicated by pneumonia, and one case of pneumonia. The animals were given total doses of 20,000 or 56,000 units: 3 were given 20,000 units i/v, and the remainder were injected i/m. Of the 11 sheep without pneumonia one died and the remaining 10 were cured. Both animals with pneumonia died.

While they drew no firm conclusions from this small-scale experiment, the authors considered that bacitracin might well prove suitable for treating uncomplicated haemorrhagic septicaemia in sheep.—A.S.

Schröter, A. (1954). Über das Vorkommen von Bakterium ovium (Dammann-Freese) bei Ziegen. **[Isolation of *B. ovium* (Dammann-Freese) from goats with mastitis.]** [*Pasteurella mastitidis* (Bergey).]—*Berl. Münch. tierärztl. Wschr.* **67**, 3-5. [English summary.] 2225

An account of mastitis in a goat stated to have been caused by *Past. mastitidis*. The organism was also observed to cause abortion in goats which had been in contact with infected sheep.—W. G. Siller.

Gwatkin, R. & Dzenis, L. (1953). **Rhinitis of swine. VIII. Experiments with *Pasteurella multocida*.**—*Canad. J. comp. Med.* **17**, 454-464. 2226

A subculture of *Past. septica* (*multocida*) produced rhinitis 7 months after isolation. Six consecutive field cases yielded the organism, and cultures from each of these gave rise to atrophic rhinitis when inoculated into piglets. All cultures gave the usual biochemical reactions and none were agglutinable. Pasteurella antiserum appeared to have some effect in immunizing against recently isolated cultures in one experiment, but not in three others.

—P. J. G. Plummer.

Bolin, F. M. & Eveleth, D. F. (1951). **The use of biological products in experimental fowl cholera.**—*Proc. 88th Ann. Meet. Amer. vet. med. Ass.* Milwaukee. Aug. 20-23, 1951. pp. 110-112. 2227

The authors studied the predisposing factors influencing the production of fowl cholera by the oral route and compared the protective value of antiserum and vaccines against parenteral infection.—F. T. W. Jordan.

Szent-Iványi, M. (1951). Immunbiologische Untersuchungen an Pasteurella-Stämmen. **[Immunological study of *Pasteurella* strains.]** —*Acta vet. hung.* **1**, 261-269. [In German. Russian summary.] 2228

Using 5 sera prepared in horses with strains representing groups based on biochemical properties, the author carried out mouse protection tests with 29 strains of virulent *Pasteurella*. Sixteen of these were of Group I (Manninger's classical *Past. multiseptica*), 6 of Group II and 7 of Group III. The results indicated that classification on biochemical grounds might not place together strains immunologically identical or even related. The Group III strains were reasonably well-defined; but the Group III serum protected against a number of Group I strains and one Group II. A commercial polyvalent serum in similar doses gave protection against all the strains.

[The origin of the strains is not stated although a reference in the text suggests that they may have been from cases of fowl cholera. The potency of the sera against the homologous strains was not compared with that against the other strains. The results reported in this

small-scale survey are in general agreement with the work of Roberts (*V.B.* **19**, 1180) and others.]—J. R. HUDSON.

CRUICKSHANK, C. N. D. & LOWBURY, E. J. L. (1953). **The effect of pyocyanin on human skin cells and leucocytes.**—*Brit. J. exp. Path.* **34**, 583-587. [Authors' summary modified.] 2229

Experiments were made to determine the toxicity of pyocyanin to tissue cultures of human skin and to human leucocytes. Pyocyanin was found to be toxic to skin *in vitro* at levels above 0·0024 mg./ml. and to leucocytes at levels above 0·08 mg./ml. Estimates were made of the concentration of pyocyanin present on 5 burns infected with *Ps. pyocyanea*. The concentrations ranged from 0·008 to 0·31 mg./g. The concentrations found on human burns were all capable of causing toxic effects on skin *in vitro*. The leucocytes were less sensitive, being affected only by the highest concentrations found in burn exudates.

I/d injection of pyocyanin into g. pigs caused no local lesion. The lesions produced by the i/d inj. of pyocyanin-producing and non-pyocyanin-producing strains of *Ps. pyocyanea* did not differ in size.

The authors discussed these findings in relation to the observed ill-effects produced by *Ps. pyocyanea* on human burns.

GILBERT, S. J. (1953). **The association of *Proteus* with canine dysentery.**—*Aust. vet. J*, **29**, 168-170. [Abst. from author's summary.] 2230

Proteus mirabilis and *P. morgani* were isolated from 41 out of 68 faecal samples from dogs with dysentery, *P. mirabilis* being more frequent. *P. vulgaris* was not observed in any of these cases. Antibiotic treatment gave good results and virtually eliminated mortality. Direct plating of faecal swabs on S.S. medium from 27 dogs which passed normal faeces did not yield *Proteus* organisms.

VAN ULSEN, F. W. (1953). Coligranuloom bij kippen. [**So-called *Bact. coli* granuloma in fowls.**]—*Tijdschr. Diergeneesk.* **78**, 393-397. [English, French and German summaries.] 2231

The author reported 8 cases of so-called granuloma of the viscera in fowls, described by Hjärre and Wramby [*V.B.* **19**, 2075].

—C. A. VAN DORSSEN.

MERKEL, J. R. & STEERS, E. (1953). **Relationship between "chloramphenicol reductase activity" and chloramphenicol resistance in *Escherichia coli*.**—*J. Bact.* **66**, 389-396. 2232

Induced chloramphenicol resistance in a strain of *Bact. coli* was paralleled at low levels of resistance by increased ability to reduce chloramphenicol, suggesting a possible resistance mechanism. Further increases in resistance were unaccompanied by increased reductase activity.

The process was reversible unless resistance had been increased above 10-20 μg./ml. Thereafter withdrawal of chloramphenicol caused only incomplete reversion to the original sensitivity, though reductase activity fell below that of the original strain.—J. E. SMITH.

GADEN, E. L., JR. & HENLEY, E. J. (1953). **Induced resistance to gamma irradiation in *Escherichia coli*.**— *J. Bact.* **65**, 727-732. Discussion: p. 1016. 2233

The authors succeeded in inducing resistance to gamma irradiation in two strains of *Bact. coli*. They described a method for estimating the number of resistant cells.—J.D.

DE, M. L., GUHA, A. & DAS-GUPTA, N. N. (1953). **Phase contrast and electron microscopic studies on the nuclear apparatus of *Escherichia coli*.** —*Proc. roy. Soc.* Ser. B. **141**, 199-203. 2234

Phase-contrast microscopy of *Bact. coli* from 1–2 hour cultures reveals three dark zones, two polar and one medial. The intervening zones coincide with chromatin bodies demonstrable by Giemsa staining. These "nuclear sites" are of smaller electron-scattering power, and shadowed replicas show that they are marked by a depression in the cell surface.

—J. E. SMITH.

RISLAKKI, V. & STENBERG, H. (1953). Salmonellosen bei Tieren in Finnland. Statistik und bakteriologische Typenbestimmung. [***Salmonella* organisms in animals in Finland.**]—*Proc. XVth Int. vet. Congr. Stockholm.* **1953. 2**, Pt. 1. 1178-1183. [In German. English and French summaries.] 2235

The authors listed the species of salmonella isolated from samples of human or animal origin at the State Veterinary Laboratory, Helsinki, during the years 1932-52. They discussed briefly the incidence of these organisms in horses, cattle, dogs, cats and laboratory animals, and in foxes and other fur-bearing animals.

—R.M.

BEN-DAVID, B. (1953). **[Use of terramycin in calf salmonellosis.]**—*Refuah Vet.* **10**, 62. [In Hebrew. Abst. from English summary. p. 82.] 2236

Five calves (age not stated) recovered from *S. dublin* infection after the i/v administration

of 0·5 g. terramycin in aqueous soln., repeated 24 hours later. Arthritis which developed in one calf 2 months after recovery was successfully treated by intravenous and intra-articular administration of the drug.—R.M.

Vogelsang, E. G. & Rodil Calderón, T. (1951). Salmonellosis equina. Observación en Venezuela. **[Salmonella infection in horses in Venezuela.]**—*Rev. Med. vet., Caracas.* **10,** 129-131. 2237

The authors referred to several cases of *S. abortus-equi* infection, commenting on the differential diagnosis from equine infectious anaemia, piroplasmosis, and anaemia resulting from helminth infestation, and on the high rate of mortality. The infection was controlled by hygienic measures.—A.S.

Hirato, K., Shimizu, K., Sato, G. & Itoh, T. (1953). **[Studies on the serological diagnosis of equine paratyphoid. Especially on the precipitin reactions with the bacterial polysaccharide antigen of *Salmonella abortus-equi*.]** —*Vet. Res., Japan.* **1,** 49-59. [In Japanese. Abst. from English summary.] 2238

The authors compared the results obtained with blood from 8 foals and 519 horses infected with *S. abortus-equi* by the agglutination, complement fixation, and precipitin tests. Polysaccharide antigen was employed in the latter test. They concluded that the precipitin test was of greater value for diagnosis than the agglutination test.—R.M.

I. Sakai, T. & Sonoda, M. (1953). **[The clinical and haematological observations on paratyphoid in foals, especially on its diagnostic significance.]** — *Vet. Res., Japan.* **1,** 77-83. [In Japanese. Abst. from English summary.] 2239

II. Hamada, S. (1953). **[Experimental studies on paratyphoid in foals. II. Observations on endemic paratyphoid which occurred extensively among yearling foals.]**—*Ibid.* 85-96. [In Japanese. Abst. from English summary.] 2240

III. Hamada, S. (1953). **[Experimental studies on paratyphoid in foals. III. Serological reactions of foals against *Salmonella abortus-equi*.]**—*Ibid.* 137-147. [In Japanese. Abst. from English summary.] 2241

I. The authors described the clinical features of, and the blood picture in, *S. abortus-equi* infection in 8 foals, 6–19 months old, artificially infected by mouth.

II. H. described an outbreak of abortion in mares and of joint-ill in foals caused by *S. abortus-equi* infection, and gave details of 33 cases in yearling foals, which was the age group with the highest incidence of infection (69%). In affected foals swellings of other parts of the body besides the joints occurred in most cases.

III. Agglutinating and complement-fixing antibodies against *S. abortus-equi* were present in the colostrum of mares which had been immunized, and in the blood of their foals during the first 2 months of life. H. described a method of distinguishing between natural infection and acquired immunity in young foals by serological reactions.—R.M.

Hirato, K. & Sato, G. (1953). **[Studies on equine paratyphoid vaccine. I. Comparative studies on the pathogenicity of different strains of Salmonella abortus-equi for the mouse.]** —*Vet. Res., Japan.* **1,** 11-28. 2242

Hirato, K., Sato, G., Ono, T. & Shimizu, K. (1953). **[Studies on equine paratyphoid vaccine. II. On the mice protection test.]**—*Ibid.* 29-39. [In Japanese. Absts. from English summaries.] 2243

I. There was no marked difference between freshly isolated strains and stock cultures of *S. abortus-equi* in their pathogenicity for mice. Strains isolated from purulent or inflammatory lesions of horses appeared to be more virulent for mice than those isolated from stomach contents of aborted foetuses. The addition of mucin to cultures enhanced their virulence.

II. The authors described the immune response of mice to single or repeated i/p injections of heat-killed *S. abortus-equi*. The method described by Ando [*V.B.* **24,** 1051] of adding alum-chromate solution to the bacterial suspension, produced a vaccine which was less toxic but also less effective in mice than heat-killed or formolized *S. abortus-equi* vaccines.—R.M.

Lannek, N. & Brag, S. (1954). **The prophylactic value of nitrofurazone in *Salmonella choleraesuis* enteritis of pigs : a field experiment.**—*Vet. Med.* **49,** 75-78. 2244

In a herd of 80 pigs in which *S. choleraesuis* was giving trouble, daily doses of 0·1–0·5 g. nitrofurazone per pig were given in the food for 2–3 weeks. No further cases occurred. —R.M.

McGaughey, C. A., Schmid, E. E., Velaudapillai, T. & Weinman, A. M. (1953). *Salmonella typhimurium* **in young elephants and chimpanzees.**—*Vet. Rec.* **65,** 431-432. [Abst. from authors' summary.] 2245

S. typhi-murium was isolated from the faeces of two orphaned baby elephants with diarrhoea, which proved fatal, and also from the faeces of two young chimpanzees caged near

the elephants in a Zoo in Ceylon. The chimpanzees had been found earlier to be infected with *Shigella flexneri* 4 and 6.

The source of infection was probably the water supply, known to be polluted by human excreta.

FOGH, B. (1952). **Effect of combined antibiotics on** *Salmonella typhimurium*.—*Acta path. microbiol. scand.* **31**, 481-491. [In English.] 2246

An account of *in vitro* experiments to investigate the effect of combinations, at varying dilutions, of any two of the following antibiotics and chemicals:—penicillin, streptomycin, chloramphenicol, terramycin, and sulphathiazole. Under stated conditions, the activity of penicillin was reduced by, and sulphathiazole was antagonistic to, terramycin and chloramphenicol.

—F. T. W. JORDAN.

MEYER, R. (1953). Wie lange halt sich der Paratyphus B, Schottmüller in natürlich saurer Dickmilch. [**Viability of** *Salmonella paratyphi B* **in sour milk.**] — *Z. Hyg. InfektKr.* **137**, 399-409. 2247

When small numbers of *S. paratyphi B* were added to fresh uncontaminated milk, rapid growth of the organisms took place at 37°C., reaching a maximum at 24 hours. In sour milk and in dried crusts such as those which may collect in the corners and seams of milk containers the organisms survived for at least 7 months.—R. B. HOLCOMBE.

METZLER, E. (1952). Über die Eignung einer abgekürzten Langsamagglutinationmethode und deren Übereinstimmung mit der Frischblutschnellmethode bei der Bekämpfung der Pullorumseuche. [**A modified agglutination test in the diagnosis of** *Salmonella pullorum* **infection.**] — *Inaug. Diss. Munich.* pp. 32. 2248

A conventional account.—H. BEHRENS.

SCHOENHARD, D. E. & STAFSETH, H. J. (1953). **Growth curves of** *Salmonella pullorum* **in different media.**—*J. Bact.* **65**, 69-74. 2249

Five strains of *S. pullorum* were studied for growth in nutrient broth, 1% tryptose water and a synthetic medium containing glucose, asparagine and various salts, vitamins and trace elements. Most rapid growth occurred in nutrient broth and slowest growth in the synthetic medium.—F. T. W. JORDAN.

FARINA, R. & BIGGI, P. (1953). L'impiego del latte come diluitore e dell'antigene al tetrazolio nella sieroagglutinazione di Wright. [**The use of serum diluted with milk and of tetrazolium stained antigen for the diagnosis of** *Brucella* **infection.**]—*Zooprofilassi.* **8**, 569-572. [English and French summaries.] 2250

In this modification of the agglutination test the serum is diluted with cows' whole milk. One drop of antigen stained with tetrazolium is added to each tube and the readings are made after one hour's incubation at 37°C.

—I. W. JENNINGS.

DIERNHOFER, K. (1952). Zur Technik der abgestuften Röhrchenagglutination in der Diagnostik der Brucellose. [**The slow agglutination tube test at various serum dilutions for the diagnosis of brucellosis.**] — *Wien. tierärztl. Mschr.* **39**, 201-225. [English, French and Italian summaries. 2251

D. advocated a tube test, using a washed suspension of brucella at a final conc. of 0·03%. The result is expressed by the titre range from the last tube showing complete agglutination to the last tube showing any agglutination and the " mean titre " is calculated. He urged that the method should be standardized and that all antigen should be prepared in one centre.

—E. G. WHITE.

HENDRIKSE, J., JOLING, K. F. & WILLEMS, G. B. R. (1953). Bevruchtingsresultaten van de kunstmatige inseminatie bij het rund en infectie met *Brucella* Bang. [**Fertility in herds of cattle infected with** *Br. abortus*.]—*Tijdschr. Diergeneesk.* **38**, 982-987. [English, French and German summaries.] 2252

The fertility rate is lower in herds where the *Br. abortus* ring test on bulk milk gives a positive reaction. The fertility of cows with a negative individual test is higher in inverse ratio to the titre of the ring test for bulk milk. No differences in the fertility rate were detected between unvaccinated (Strain 19) and vaccinated animals.—I. MARTINI.

HESS, W. R. (1953). **Studies on a nonspecific brucella-agglutinating substance in bovine serum. I. The differentiation of the specific and nonspecific agglutinins by heat treatment. II. Isolation and purification of the brucella-agglutinating substances.**—*Amer. J. vet. Res.* **14**, 192-194; 195-197. [Author's summary modified.] 2253

I. H. investigated a non-specific brucella-agglutinating substance in bovine serum, differentiating it from the specific agglutinin on the basis of its non-specific agglutinating activity, the readiness with which it is adsorbed on to cellulose, and its inactivation by heat treatment at 70°C. for 10 min.

II. While isolating and purifying certain

non-specific brucella-agglutinating substances in bovine serum, H. demonstrated additional properties which serve to distinguish them from specific agglutinins. The non-specific substances adsorbed on brucella organisms were more readily eluted than were the specific agglutinins, and were precipitated from eluates by 30% saturation with ammonium sulphate, while up to 50% saturation was required for the precipitation of the specific agglutinins. Specific brucella agglutinins were found to be associated with the γ-globulin fraction of the serum while the non-specific substances were associated with the fraction containing *iso*-agglutinins, cold insoluble globulins, and certain factors concerned with the clotting of blood.

Jurado, F. R., Cedro, V. C. F. & Moran, B. L. (1951). La antibrucellina en el tratamiento de la brucelosis bovina. **[Antibrucellin in treatment of bovine brucellosis.]** — *Publ. Misc. Min. Agric., B. Aires.* No. 353. pp. 15. [English and French conclusions.] 2254

The authors administered the above product " antibrucellin " (a vitamin K derivative —sodium 2-methyl-6-hydroxyl-1,4-naphthoquinone sulphonate) to 35 cows reacting to the agglutination tests with serum and milk, to an i/d skin test employing brucellin, and from which *Br. abortus* was isolated. The dosage was 100–400 mg. of the drug administered in 3% solution by i/v injection once daily for 5–6 days. Treatment had no effect on agglutination titres nor on reactions to the i/d test. *Br. abortus* was isolated from the milk of 18 cows before treatment, and from 23 cows up to 6 weeks after treatment. [See also *V.B.* **23**, 582 & 583.] —R.M.

Spink, W. W. & Thompson, H. (1953). **Human brucellosis caused by *Brucella abortus*, Strain 19.**—*J. Amer. med. Ass.* **153**, 1162-1165. [Abst. from authors' summary.] 2255

An account of infection in two veterinarians after accidental inoculation with *Br. abortus*, Strain 19. In one, the illness was associated with marked hypersensitivity to brucella. *Br. abortus* Strain 19 was isolated from the blood of one of the patients. This is stated to be the first recorded bacteriological proof that human brucellosis can be induced by Strain 19. Strain 19 should be used only by properly qualified persons.

Kutleša, I. & Lukačević, J. (1953). Rezultati seroloških istraživanja kod ljudi izloženih infekciji govedom brucelozom. **[Serological investigation of occupational brucellosis in the province of Bosnia-Hercegovina, Yugoslavia.]**—*Veterinaria, Sarajevo.* **2**, 250-254. [In Croat. Abst. from English summary.] 2256

In an area of Yugoslavia where 20–60% of the cattle were reactors to the agglutination test for *Br. abortus* infection, the blood of 38 out of 117 (23·9%) farm workers in contact with cattle contained titres of 1:80 or more.—R.M.

Victor, J., Pollack, A. D., Valliant, J. R. & Raymond, R. (1952). **Human blood opsonin titers against brucella.**—*J. Amer. med. Ass.* **149**, 809-813. 2257

An account of the estimation of the opsonin blood titre to brucella in human beings.

Wellman, G. (1952). Brucelleninfektionsversuche an Meerschweinchen. **[Methods of infection in experimental brucellosis in g. pigs.]** —*Zbl. Bakt. I. (Orig.)* **158**, 513-518. 2258

G. pigs were infected with *Br. abortus, Br. suis* and *Br. melitensis* through intact skin and by endermic inoculation. The infection was transmitted by contact in cages to the offspring and to other young g. pigs. W. described the lesions caused by the three types in this host. —H. Behrens.

Shaffer, J. M., Kucera, C. J. & Spink, W. W. (1953). **Evaluation of prolonged antibiotic therapy in mice with chronic brucella infection due to *Brucella melitensis*.**—*J. Immunol.* **70**, 31-38. [Abst. from authors' summary.] 2259

A chronic, sublethal *Br. melitensis* infection was established in mice and treatment with aureomycin, terramycin and streptomycin, alone and in various combinations was started 4 weeks later, being continued for 3 or 6 weeks. The results were evaluated by spleen cultures for brucella at the completion of treatment and 4 weeks after it ceased. Any of the combinations of streptomycin with aureomycin, terramycin, or sulphadiazine were superior to any one of the drugs used alone. With such combined therapy the spleens of all except one of 100 mice failed to yield brucella in culture tests.

Treatment with aureomycin or terramycin alone in doses of 60 mg./kg./day for 3 weeks resulted in the eradication of brucella from the spleen in only 20–30% of the animals, as determined by spleen cultures at the completion of treatment. However the final result of this therapy as determined by spleen cultures 4 weeks after cessation of treatment was the eradication of the organisms in 70–80% of the animals—this observation emphasizing the significant role of the host's immune mechanisms in the final eradication of brucella infections.

Treatment with aureomycin alone in doses of 30–60 mg./kg./day for 6 weeks produced, as an immediate result, eradication of brucella from the spleen in 75–100% of the animals. The final results of this prolonged therapy, however, as determined 4 weeks after cessation of treatment, were no better than the final results with only 3 weeks of treatment.

RENOUX, G. & RAZAGHI AZAR, H. (1953). Fréquence et répartition de *Brucella*, var. intermédia dans les tissues de caprins naturellement infectés. [**Distribution of *Br. intermedia* in the tissues of infected goats.**]—*Rev. Path. gén.* **53**, 1595-1600. [English summary.] **2260**

Bacteriological examination of tissues and organs of 15 goats naturally infected with *Brucella* var. *intermedia* showed that the highest incidence of infection was in the brain and spinal cord; the genital organs, mammary gland and related lymph nodes frequently gave positive cultures. Other tissues examined seldom yielded cultures.—R. B. HOLCOMBE.

RITA, G. & LEVI DELLA VIDA, B. (1951). Caratteristiche delle Brucelle della collezione dell' Istituto di Microbiologia dell'Università di Roma. [**Characters of strains of *Brucella* in the collection of the Institute of Microbiology of the University of Rome.**]—*Nuovi Ann. Ig. Micr.* **2**, 324-329. **2261**

The authors investigated the serological reactions, resistance to thionin and basic fuchsin, and capacity to produce H_2S on liver agar, in 176 strains of *Brucella* from various sources. Of these 154 showed typical reactions and could readily be classed as *Br. melitensis* (128), *Br. abortus* (25) and *Br. suis* (1). The remaining 22 strains showed divergences from the normal, making it difficult to identify them.

—I. MARTINI.

ZAHARIJA, I. (1952). Serološka pretraga konja ergele Lipik s obzirom na leptospirozu. [**Serological examination of the Lipitsa stud of horses for leptospirosis.**]—*Vet. Arhiv.* **22**, 177-186. [French and German summaries. Abst. from summaries.] **2262**

Z. used the agglutination-lysis test to demonstrate leptospira antibodies in horses at a stud farm in Lipitsa; 69·3% of the Lipitsa breed gave positive results, compared with 51·7% of the Nonius breed, but the distinction was not significant. Antibodies were demonstrable in all of 6 animals with equine periodic ophthalmia. Animals in their first year usually gave negative reactions. It was concluded that leptospira infection was common in the district.—A.S.

MANTOVANI, A. (1953). L'isolamento della Leptospira icterohaemorragiae in un focolaio di leptospirosi bovina. [**Isolation of *L. icterohaemorrhagiae* from cattle.**] — *Zooprofilassi.* **8**, 273-278 & 281-282. [English, French and Spanish summaries.] **2263**

M. identified *L. icterohaemorrhagiae* agglutinins in the blood, and isolated the organism, from a small outbreak of a disease of cattle in Italy characterized by haemoglobinuria.

—R.M.

ROSSI, P., KOLOCHINE-ERBER, B. & BERUJON, J. (1953). Leptospiroses et lésions oculaires chez le chien. [**Leptospirosis and ocular lesions in dogs.**]—*Bull. Acad. vét. Fr.* **26**, 451-454. Discussion: pp. 454-455. **2264**

An account of observations on leptospirosis in two dogs with ocular complications; both gave positive agglutination reactions, in titres of 1:10,000 and 1:50,000 respectively with *L. canicola*. No attempt was made to isolate the organism.—J.D.

SCHNEIDER, M. D. (1954). **Isolation and chemical composition of complement-fixing antigens from leptospires.**—*Proc. Soc. exp. Biol., N.Y.* **85**, 32-37. [Author's summary modified.] **2265**

S. developed a chemical separation procedure which yields four arbitrary cell fractions; and he applied it to three serotypes of leptospira. The four complement-fixing fractions are non-dialyzable, pentose-containing materials, the serological activities of which have been measured semi-quantitatively. One or more complement-fixing principles, of nature not yet known, are concentrated in two chemically distinct, polysaccharide-containing cell fractions, relatively free from protein. The protein constituent (Fraction 3) of the leptospiral cell was poorly reactive in the c.f. test. Spectrophotometric differences among preparations of Fraction 2 from three serotypes may prove to be an aid in the differentiation of serotypes.

CZEKALOWSKI, J. W., MCLEOD, J. W. & RODICAN, J. (1953). **The growth and respiration of leptospira in solid or semi-solid media with special reference to Dinger's phenomenon.**—*Brit. J. exp. Path.* **34**, 588-595. [Authors' summary modified.] **2266**

The authors confirmed that leptospira form discs of dense growth a few mm. below the surface of solid and semi-solid media. They suggested that an account of this phenomenon, which assists the recognition of viable cultures, might with advantage be included in text-book descriptions.

The respiratory mechanism of leptospira is peculiar in that, although they require gaseous O_2, and to this extent are strict aerobes, in a limited sense they are probably micro-aerophilic. They are cyanide-sensitive, and resemble a small group of bacteria, of which the best known is the dysentery bacillus of Shiga, in lacking catalase, having slight reducing activity, and in failing to produce recognizable traces of H_2O_2.

Bulling, E. (1953). Untersuchungen über die Anwendung von Sulfonamiden bei Pararauschbrand-Infektionen. **[Treatment of *Clostridium septicum* infection (malignant oedema) in cattle with sulphonamides.]**—*Dtsch. tierärztl. Wschr.* **60,** 531-537. 2267

Post-parturient malignant oedema in a cow was cured by the combined administration of " supronal " (a preparation containing sulphamerazine and maphenide) and the proprietary sulphone " baludon " given intravenously and maphenide with sulphanilamide by the intrauterine route. Of these " supronal " was shown by *in vitro* experiments to be the most effective. —W. G. Siller.

Quesada, A. & Contini, A. (1953). Contributo allo studio della gastro-enterotossiemia degli ovini. (Indagini eziologiche e patogenetiche.) **[Enterotoxaemia in sheep in Sardinia.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 677-683. [English and French summaries.] 2268

An account of enterotoxaemia of sheep in Sardinia, caused by *Cl. welchii* Type C. —I. W. Jennings.

Koslowski, L., Schneider, H. H. & Heise, C. (1951). Experimentelle Untersuchungen über die Histaminbildung des Bac. enterotoxicus im Vergleich mit anderen pathogen Anaerobiern. **[Experimental study of histamine production by *Cl. welchii* in comparison with other pathogenic anaerobes.]** — *Klin. Wschr.* **29,** 29-30. 2269

The authors found that histamine was produced in cultures of *Clostridium welchii* Types A and F. Histamine was not produced by *Cl. septicum, Cl. chauvoei, Cl. oedematiens* or *Cl. histolyticum.* They discussed the theory that enterotoxaemia might be set up by histamine of bacterial origin produced in the intestine. —K. J. Sinclair.

Stumf, J. (1952). Léčení tetanu u koní injekcí séra do mozkové cysterny. **[Treatment of tetanus in horses by injecting serum into the subarachnoid cistern.]**—*Spisy Vysoké Školy Vet., Brno.* **20,** No. 187. pp. 17. [English and Russian summaries.] 2270

An account of the treatment of 13 horses with tetanus: 50,000 units of antitoxin were given i/v. At the same time 20 ml. of the c.s.f. were withdrawn by puncture of the subarachnoid cistern through the foramen magnum, this being injected, withdrawn and re-injected 10 times, this being done in order to increase the permeability of the blood-brain barrier. Finally 45 ml. of the c.s.f. were so withdrawn and replaced by an equal quantity of antitoxin at blood heat. Further dosage of antitoxin was given i/v when necessary. Ten of the 13 horses recovered.—A. Mayr-Harting.

Parisis, E. (1954). Vizsgálatok a kutyáknak tetanus elleni immunanyagtermelö - képességéröl. **[Production of tetanus antibodies in dogs.]**—*Mag. állator. Lapja.* **9,** 8-9. [English and Russian summaries. Abst. from English summary.] 2271

P. studied the antibody titres in dogs which had been vaccinated with adsorbate tetanus toxoid.—R.M.

Stone, J. L. (1954). **On the mode of release of tetanus toxin from the bacterial cell.**—*J. Bact.* **67,** 110-116. [Abst. from author's summary.] 2272

S. studied one and two day growths of *Clostridium tetani* for the source of toxin in relation to the bacterial cell. Of 5 possible mechanisms by which toxin was being released constantly from the cells into the supernatant fluid even after 15 to 20 washings with a 1% peptone solution in physiological saline—release of an enzyme from the cells into the medium where toxin could be synthesized; presence in the supernatant fluid of unsedimented cells to account for the toxicity of the supernatant from washed cells; rupture of the cells resulting in release of toxin into the medium; dialysis of toxin through the cell membrane; and release from adsorption on the surface of the cells—he concluded that most of the toxin that was found in each sample of supernatant wash fluid had diffused from within the cell into the surrounding medium. He discussed the probable mechanisms involved in the release of toxin during the 6 days of incubation for toxin production.

I. Jacotot, J. & Prévot, A.-R. (1951). Recherches sur le botulisme équin expérimental. **[Experimental botulism in the horse.]**—*Ann. Inst. Pasteur.* **81,** 334-337. 2273

II. Jacotot, J. & Prévot, A.-R. (1951). Le botulisme expérimental du cheval provoqué

par la toxine D. Symptômes, pathogénie, diagnostic, lésions. **[Experimental *Clostridium botulinum* type D intoxication in the horse.]**—*Bull. Acad. vét. Fr.* **26,** 135-140. 2274

I. A horse given 0·1 g. of *Cl. botulinum* Type C toxin *per os* died in 18 hours; the presence of toxin in the serum was demonstrable in 7 hours.

II. The authors described the effects of dosage of an unstated number of horses *per os* with *Cl. botulinum* Type D toxin. The toxin disappeared very rapidly from the blood stream. Efforts to induce intoxication by feeding live *Cl. botulinum* organisms from a 48-hour culture failed. Diagnosis by the demonstration of toxins in the blood was shown to be of no value. It was concluded that diagnosis must, at present, be based on symptoms and P.M. lesions. The authors stated in a footnote that 1 mg. of the Type D toxin used corresponded to 8,000 m.l.d. for mice and not to 2,000 m.l.d. as stated in previous papers [see also *V.B.* **23,** 2788].—G. V. Laugier.

Stewart, D. F. (1953). **The influence of dissolved tin on the growth of *Clostridium botulinum* in canned vegetables.** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. 1190-1192. [In English. French and German summaries.] 2275

Whether or not the growth of *Cl. botulinum* was inhibited by dissolved tin in canned vegetables depended on the concentration of tin and the type of vegetable, as well as on factors concerning the canning process used.—R.M.

Matsushima, J., Dowe, T. W. & Adams, C. H. (1954). **Effect of aureomycin in preventing liver abscess in cattle.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 18-20. 2276

In small groups of new-born dairy calves that were given colostrum but were either artificially fed or suckled by nurse cows, and given 15 mg. aureomycin daily for 12 weeks, scouring did not occur, and at subsequent slaughter the liver was free from abscesses, whereas in similar calves given colostrum but not aureomycin, there was intermittent scouring and the liver showed either abscesses or scar tissue.

—F.E.W.

Bozenhardt, K. (1953). Der Einfluss der Hormone auf die Entwicklung der Bakterien unter besonderer Berücksichtigung der Bakterien des Darmkanals. **[Effect of hormones on bacterial growth in the intestinal tract.]** —*Inaug. Diss., Munich.* pp. 62. 2277

In animal experiments repeated use of large doses of oestrogenic hormones failed to influence *Bact. coli,* micrococci, and streptococci in the intestinal tract. In *in-vitro* experiments pregnant mares' serum, exerted a slight inhibitory effect on bacterial growth, but other oestrogenic hormones had no such action. (65 refs.)

—W. R. Bett.

Götze, R. & Merkt, H. (1953). Zur Prophylaxie und Therapie der Infektionen der Kälber im Säuglingsalter. **[Prevention and treatment of infections of unweaned calves.]** —*Dtsch. tierärztl. Wschr.* **60,** 348-351. 2278

The authors emphasized the importance of individual housing and individual and regulated feeding of calves. " Supronal " (a preparation containing two sulphonamides) and aureomycin have a wide range and are used (together with symptomatic treatment) for *Bact. coli* infection, and for umbilical infection with streptococci and staphylococci, for arthritis, broncho-pneumonia and catarrhal enteritis; and aureomycin for salmonella infection and *Pasteurella septica* pleuropneumonia. *Corynebacterium pyogenes* infection is best helped by treating the streptococcal and staphylococcal infections which are often also present. The authors had no success with sulphonamides and penicillin in *Fusiformis necrophorus* infection in calves.—J. E. Smith.

Gaulier, C. (1952). Prévention de la septicémie des veaux par le venin de crapaud. **[Toad venom in prevention of calf septicaemia.]**—*Rec. Méd. vét.* **128,** 97-101. 2279

In a number of experiments G. injected toad venom (8 units) i/m into 140 calves, on the day of birth and on the following day. The losses in these calves from gastro-enteritis, broncho-pneumonia, and septicaemia were said to be reduced, compared with previous losses. None of the calves with gastro-enteritis developed broncho-pneumonia.

G. considered that extracts of toad venom acted on the adrenal cortex, stimulating the secretion of corticosteroids.—J.D.

Auclair, J. E. & Hirsch, A. (1953). **The inhibition of micro-organisms by raw milk. I. The occurrence of inhibitory and stimulatory phenomena. Methods of estimation.**—*J. Dairy Res.* **20,** 45-59. 2280

The authors stated that at least two substances are responsible for the inhibitory properties of milk on micro-organisms, and that stimulative substances, interfering with this inhibition, also occur. These two inhibitory substances, lactenin I and lactenin II, differ slightly in their pH and heat stabilities; the authors described methods for their separate estimation.

—E. A. Gibson.

KENDA, I. (1952). Prilog k zatiranju enzootične bronhopneumonije telet (Bronchopneumonia enzootica vitulorum). [**Control of enzootic broncho-pneumonia in calves.**]—*Vet. Glasn.* **6,** 459-463. [In Slovene. Germany summary.] 2281

An account of the treatment of enzootic pneumonia in calves with a mixed vaccine containing pasteurella organisms, *Pseudomonas pyocyanea* and streptococci isolated from lesions.—I. MARTINI.

LOWBURY, E. J. L. & FOX, J. (1953). **The influence of atmospheric drying on the survival of wound flora.**—*J. Hyg., Camb.* **51,** 203-214. 2282

Drying accelerates the death *in vitro* of *Pseudomonas pyocyanea* and to a less extent of pyogenic cocci. This may have some bearing on the treatment of external suppurative conditions.—J. E. SMITH.

ROZANSKY, R., BACHRACH, U. & GROSSOWICZ, N. (1954). **Studies on the antibacterial action of spermine.**—*J. gen. Microbiol.* **10,** 11-16. [Authors' summary copied *verbatim.*] 2283

Spermine was found to inhibit the growth of various micro-organisms. The most susceptible were *Staphylococcus aureus* and *Staph. albus, Neisseria gonorrhoeae* and *N. meningitidis,* and to a lesser degree *Bacillus anthracis.* The Enterobacteriaceae were relatively resistant. The action of spermine was enhanced by an increase in pH of the medium. The antibacterial effect was bactericidal; it was slowed but not prevented by a decrease in temperature from 37° to 6°. The nutrients of various media influenced the action of spermine.

KENNEDY, E. R. & BARBARO, J. F. (1953). **Quantitative adsorption of crystal violet.**—*J. Bact.* **65,** 678-680. 2284

The nitrogen content of bacteria exposed to crystal violet was ascertained. Staphylococci killed by heat adsorbed more crystal violet than those killed by formol. *Salmonella typhi* adsorbed the same quantity of crystal violet whether killed by heat or by formol. *Corynebacterium xerose,* a Gram-variable strain of *C. diphtheriae,* and *Micrococcus pyogenes* var. *aureus* adsorbed more crystal violet than staphylococci or *S. typhi.*—A. SEAMAN.

BUDDINGH, G. J. (1953). **Bacterial and mycotic infections of the chick embryo.**—*Ann. N.Y. Acad. Sci,* **55,** Art. 2. pp. 282-287. 2285

A brief review of established work showing that some pathogenic bacteria and some fungi will reproduce features characteristic of the corresponding diseases in adult animals when injected into the chick embryo. Localization of a given infection to specific embryonic tissues aids in the understanding of the nutritional needs of the causal organism.—A. SEAMAN.

BLANK, F., BYRNE, J. L., PLUMMER, P. J. G. & AVERY, R. J. (1953). **Isolation of *Trichophyton granulosum* Sabouraud, 1909, from chinchillas showing " fur - slipping ".** — *Canad. J. comp. Med.* **17,** 396-399. Discussion pp. 399-402. 2286

Culture of skin scrapings from chinchillas affected with alopecia revealed the presence of *Trichophyton granulosum,* which was believed to be the causative agent.—R. GWATKIN.

CLARK, D. S., JONES, E. E., CROWL, W. B. & ROSS, F. K. (1954). **Aspergillosis in newly hatched chicks.**—*J. Amer. vet. med. Ass.* **124,** 116-117. [Abst. from authors' summary.] 2287

An account of an outbreak of hatchery-borne *Aspergillus fumigatus* infection involving 26 broods of chicks.

ANDRES, J. (1952). Über die Kieferaktinomykose des Rindes und über die Aktinomykose im Allgemeinen. [**Actinomycosis of the jaw of cattle.**]—*Schweiz. Arch. Tierheilk.* **94,** 694-712. [English, French and Italian summaries.] 2288

The author discussed literature on actinomycosis in animals, and on its treatment, and described actinomycosis of the upper jaw in a bull, treated for two and a half years before slaughter became necessary. Ten photographs were reproduced.—R.M.

RYFF, J. F. (1953). **Encephalitis in deer due to *Actinomyces bovis*.**—*J. Amer. vet. med. Ass.* **122,** 78-80. 2289

An account of observations on a 3-year-old deer, shot after it had been observed to display nervous symptoms. A rabbit inoculated intracerebrally with material from the hippocampus developed, on the left cerebral lobe, an abscess containing an organism resembling *Actinomyces bovis* in its cultural characteristics.—A.S.

MANTOVANI, A. (1953). Le micosi animali e loro transmissibilità all'uomo. [**Mycotic infections of animals transmissible to man.**]—*Croce Azzurra.* **4,** 69-78; & 135-142. 2290

Semi-popular notes on mycoses of animals transmissible to man (*e.g.* ringworm, epizootic lymphangitis) [transmission to man very doubtful], on mycoses endogenous in both animals and man (*e.g.* actinomycosis, monili-

asis), and on mycoses which occur in both animals and man as a result of exposure to a common cause of infection (*e.g.* sporotrichosis, rhinosporidiosis, aspergillosis, histoplasmosis, and coccidioidomycosis). The 14 figures are all reproduced from various publications. There are no references.—G. C. AINSWORTH.

McKAY, K. A. & TAYLOR, J. R. E. (1954). **The reversion of L type cultures previously described as pleuropneumonialike and associated with chronic respiratory disease to an organism resembling *Hemophilus gallinarum*.**—*Canad. J. comp. Med.* **18,** 7-12. 2291

A Gram-variable rod was propagated from established egg-adapted strains of so-called pleuropneumonia-like organisms associated with chronic respiratory disease and infectious sinusitis of turkeys, and also from field cases of these diseases. The agent appears to be the L phase of a true bacterium rather than a pleuropneumonia-like organism. The authors discussed the similarity of the organism to *Haemophilus gallinarum*.—P. J. G. PLUMMER.

KASAI, G. J. (1953). **Growth response of micro-organisms to vitamins at different temperatures.**—*J. infect. Dis.* **92,** 58-69. 2292

On media containing sub-optimal quantities of group B vitamins some organisms flourished best at lower temperatures, others at higher temperatures and still others at normal temperatures. K. discussed various explanations. The organisms tested included *Bact. coli, Proteus vulgaris,* and *Staph. aureus*.—JOHN SEAMER.

TOMCSIK, J. & GUEX-HOLZER, S. (1954). **Demonstration of the bacterial capsule by means of a pH-dependent, salt-like combination with proteins.**—*J. gen. Microbiol.* **10,** 97-109. [Authors' summary copied *verbatim*.] 2293

The capsules of bacteria and of *Cryptococcus neoformans* are invisible under the phase-contrast microscope. They can be made visible through addition of a number of proteins at a certain, usually very narrow, pH range lying on the acid side of the isoelectric point of the proteins. The pH range at which the reaction occurs shifts with the isoelectric point of the protein used. The optimal pH range depends, on the other hand, upon the capsular substance of the micro-organism. The non-specific capsular reaction is elicited through a salt-like combination of several proteins with the bacterial capsule, leading to precipitation at a pH value on the alkaline side of the isoelectric point of the bacterial surface and on the acid side of the isoelectric point of the proteins. The reaction is reversible; it disappears on changing the pH. The non-specific capsular reaction at an inter-isoelectric pH zone of the bacterial surface and of the proteins is not a " swelling " reaction. A swelling of the capsule might occur with some bacteria as a secondary phenomenon on the alkaline side of the reaction zone. The reaction occurs in a broader zone in members of the genus *Bacillus* where it reveals a distinct shrinkage of the capsule at the acid side of the reaction zone.

ARMITAGE, P. (1953). **Statistical concepts in the theory of bacterial mutation.**—*J. Hyg., Camb.* **51,** 162-184. 2294

A short exposition of the mathematical and statistical theory of the growth of bacterial populations subject to mutation. The author gave methods of estimating mutation rates from short- and long-term experiments with mutating populations and discussed their limitations.
—J. E. SMITH.

JENNENS, M. G. (1954). **The effect of desiccation on antigenic structure.**—*J. gen. Microbiol.* **10,** 127-129. [Author's summary copied *verbatim*.] 2295

Two different organisms were dried in normal rabbit serum and in the presence of specific antibody. Reconstitution of the dried products showed that the presence of antibody did not affect the viability, agglutinability or absorptive capacity of the bacteria.

SMITH, H., ZWARTOUW, H. T., GALLOP, R. C. & HARRIS-SMITH, P. W. (1953). **The virulence-enhancing factor of mucins. 7. The remaining components of the ' third factor ' involved in virulence enhancement.** — *Biochem. J.* **53,** 673-678. [For previous parts, see *V.B.* **20,** 3424 & **23,** 388-392.] 2296

The remaining components of the virulence-enhancing third factor of mucins are chondroitin-sulphuric acid and a neutral blood-group mucoid. From the factors the authors reconstituted a virulence-enhancing mucin. The mucoid activity is not related specifically to either blood group A or H activity.
—F. R. PAULSEN.

McNEILL, J. J., DOETSCH, R. N. & SHAW, J. C. (1954). **Some nutritional requirements of bovine rumen bacteria.**—*J. Dairy Sci.* **37,** 81-88. [Authors' summary modified.] 2297

The authors studied the nutritional requirements of bovine rumen bacteria with emphasis upon the role of rumen fluid as an essential factor in their growth. No materials were found which possess the same stimulative effect as

rumen fluid for the over-all rumen population. The essential factors in rumen fluid are not found to any degree in the rich nitrogenous materials ordinarily used for the growth of nutritionally fastidious bacteria. In fact, many of these substances are inhibitory.

Certain complex nitrogenous sources stimulate the growth of a very few types of rumen bacteria, but at the expense of the remainder of the rumen population. Weakly active materials extracted from rumen fluid by absorption-elution methods were also found to be selective.

The authors consider rumen fluid to be both a source of nitrogen and growth factors when used in media for cultivating rumen bacteria.

Splitter, E. J. (1952). **Eperythrozoonosis in swine—filtration studies.**—*Amer. J. vet. Res.* **13,** 290-297. 2298

S. gave an account of further studies [see also *V.B.* **21,** 332, 1672, 1996; & **22,** 87] on the transmission of a disease of pigs referred to as ictero-anaemia associated with the presence of *Eperythrozoon suis* and *E. parvum* on the r.b.c. and in the blood serum, though the latter organism was usually non-pathogenic. Foote *et al.* [*V.B.* **21,** 2905] had described the disease as virus anaemia and had suggested that it was caused by an ultra-microscopic agent. S. confirmed that *E. parvum* passed through fine-grade filters impermeable to bacteria. *E. suis* passed through Mandler and W. Berkefeld filters in 4 of 29 individual serum filtrates, but not through Seitz EK filters. He failed to recover a virus from field and experimental cases and concluded that ictero-anaemia associated with *Eperythrozoon* differs from the virus anaemia of Foote *et al.* [*loc. cit.*].—F.E.W.

Berrier, H. H. & Gouge, R. E. (1954). **Eperythrozoonosis transmitted *in utero* from carrier sows to their pigs.**—*J. Amer. vet. med. Ass.* **124,** 98-100. 2299

In a breeding herd 5 sows and 12 gilts farrowed 90 piglets of which 73 died, the deaths having occurred within a few hours to one week after birth. *Eperythrozoon* was demonstrated in the affected piglets and the authors suggested that the organism was the cause of death.

See also absts. **2460** (recent advances at Weybridge); **2461** (leptospirosis in dogs); **2463** (diseases of cattle in the Punjab); **2578** (report, Great Britain); **2579** (report, Canada); **2580** (report, India); **2581** (report, Bermuda); **2584** (report, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

Gongiù, S. (1953). Transmissione naturale per via digerente del T. brucei nel gatto. [**Natural *Trypanosoma brucei* infection in a cat after ingestion of infected meat.**]—*Zooprofilassi.* **8,** 412-414. 2300

A cat, infected with *T. brucei* in a nagana-free area of country was assumed to have been infected by eating raw camel viscera from the local butcher's shop. It was cured by antrycide sulphate injections.—I. W. Jennings.

Basu, B. C., Menon, P. B. & Sen Gupta, C. M. (1952). **Regional distribution of *Tabanus* flies in India and its relationship to the incidence of surra.**—*Indian J. vet. Sci.* **22,** 273-292. 2301

The authors listed the species of *Tabanus* recorded by different workers from the five 'agricultural' regions of India. Of the 75 species recorded only seven had been incriminated in the transmission of surra, *viz., T. rubidus, T. ditaeniatus, T. macer, T. nemocallosus, T. striata, T. tropicus,* and *T. virgo.* The available information was insufficient for determining a relationship between the distribution of *Tabanus* and the incidence of surra in the country.—R. N. Mohan.

Evens, F., Schoenaers, F. & Kaeckenbeeck, A. (1953). Note sur l'amélioration du rendement dans la preparation de l'antigène trypanosomique suivant Van Goidsenhoven, Ch. et Schoenaers, F. [**A method for improving the yield in the preparation of trypanosome antigen from rats.**]—*Ann. Soc. belge Méd. trop.* **33,** 217-219. [In French. Dutch summary.] 2302

The authors found that the administration of 5 mg. ephedrine to rats at the acme stage of *T. gambiense* infections, 15 min. before bleeding out, significantly increased the amount of trypanosome material which could be extracted from the blood.—L. P. Joyner.

Colas-Belcour, J. & Vervent, G. (1953). De l'obtention de cultures en voile sur milieu liquide avec différentes souches de *Leishmania tropica.* [**Cultivation in a liquid medium of various strains of *L. tropica.***]—*C.R. Acad. Sci. Paris.* **236,** 532-534. 2303

Six out of seven strains of *L. tropica* produced varying degrees of veiling in rabbit-blood broth. In the early stages of growth agglomerations of dividing flagellates and giant plasmodial masses are seen, to be later replaced by granular or vacuolate forms with only an occasional motile organism.—J. E. Smith.

VARENIKA, N. & MARKOVIĆ, B. (1953). **[Experimental infection of sheep with *Trichomonas foetus*.]**—*Acta vet., Belgrade.* **3,** 53-59. [In Serbian. Abst. from English summary.] **2304**

Tr. foteus persisted in the vagina of pregnant ewes for a shorter period than in non-pregnant ones, and did not cause abortion. Younger ewes were more easily infected than older ones; ewes which had recovered were resistant to re-infection. The organism remained infective for cattle after passage in sheep for five and a half months.—R.M.

RIECK, G. W. (1953). Die Ascorbinsäure als Wachstumsfaktor für *Trichomonas genitalis* MAZZ. 1900 in flüssigen Kulturmedien. **[Ascorbic acid as a growth factor for *Tr. foetus* in liquid media.]**—*Zbl. VetMed.* **1,** 204-213. [English, French and Spanish summaries.] **2305**

R. confirmed the work of Cailleau [*V.B.* **9,** p. 78 & p. 760] on the value of ascorbic acid as a growth factor for trichomonads in serum-peptone broth. The optimum concentration of ascorbic acid was 0·85 mg./ml. culture liquid. —R.M.

THOMPSON, J. J. (1953). **Blackhead in pullets.** —*N.Z. J. Agric.* **87,** 437-438. **2306**

T. stated that chickens, six weeks to four months old, are not susceptible to histomoniasis. Sudden changes in food or management or an outbreak of another disease may reduce the resistance ordinarily shown. Fowl pox vaccination may precipitate an outbreak. Typical liver lesions are seen in only a small percentage of affected birds.—S. BRIAN KENDALL.

BLETNER, J. K., CLARK, T. B., WEAKLEY, C. E., JR. & VANLANDINGHAM, A. H. (1953). **The effect of sulfaquinoxaline in different ration formulations on growth and feed efficiency of coccidia-free chicks.**—*Poult. Sci.* **32,** 733-739. **2307**

Continuous administration of 0·05% sulphaquinoxaline indicated that it might be slightly toxic. It was fed for a 4-week period, beginning when the coccidia-free chicks were two or three weeks old. In none of the trials was a significant increase in growth of the chicks obtained. —JAS. G. O'SULLIVAN.

ROSSI, C. & PRANDI, L. (1953). La 5,7-dicloro-8-ossichinaldina nella terapia della coccidiosi aviare. **[Treatment of avian coccidiosis with 5,7-dichloro-8-oxyquinaldine.]** — *Zooprofilassi.* **8,** 513 & 515-517. [French summary.] **2308**

5,7-Dichloro-8-oxyquinaldine was administered in food to fowls, 3–4 weeks old, at a dosage rate of 20 mg. per head daily for 2 days, followed by 2 days without, then 10 mg. for a further 2 days. The mortality from coccidiosis amongst 2,131 treated fowls on 16 different farms was 0–2·5%, compared with 66–80% mortality in untreated fowls.—R.M.

WHITFIELD, P. R. (1953). **The uptake of radioactive phosphorus by erythrocytic stages of *Plasmodium berghei* (Vincke & Lips).**—*Aust. J. biol. Sci.* **6,** 591-596. [Author's summary modified.] **2309**

Radio-active phosphorus (P^{32}) was injected i/p into mice infected with *Pl. berghei* and the activity of the phosphorus-containing fractions of the parasites was determined at intervals during the subsequent 48 hours.

The lipoid fraction had the highest content of P^{32} containing half of the total P^{32} present in the parasites. The P^{32} content of desoxyribonucleic acid was 3·5% of the total P^{32} at the end of 2 hours, but increased to 24% of the total at the end of 48 hours. After 2 hours, the acid-soluble P^{32} accounted for 23% of the total P^{32}, but for only 13% after 48 hours. At all times, 10% of the total P^{32} was contained in the ribonucleic acid. The P^{32} content of the phosphoprotein fraction was very low throughout the experiment.

The total P^{32} content of the parasites after 48 hours was approx. four times the content after 2 hours.

RODHAIN, J. (1953). L'action de la diète lactée sur les infections à *Plasmodium berghei, Plasmodium vinckei* et *Babesia rodhaini* chez les souris. **[The effect of a milk diet on infections with *Plasmodium berghei, Pl. vinckei* and *Babesia rodhaini*.]**—*Ann. Soc. belge Méd. trop.* **33,** 245-257. [In French. Dutch summary.] **2310**

Previous workers had shown that some species of *Plasmodium* were suppressed when the hosts were fed exclusively on cows' milk fortified by the addition of some vitamins of the B complex [*V.B.* **23,** 2811; **24,** 1058, 1059 & 1060].

R. demonstrated the phenomenon in *Pl. vinckei* and confirmed the original observations with *Pl. berghei* infections in mice. The strains of the latter were highly virulent and the inhibitory effects of the diet were only slight.

No effect could be demonstrated with *B. rodhaini* infections in mice.—L. P. JOYNER.

VOGELSANG, E. G. & CABELLO, M. D. (1952). Esplenectomía y las infecciones lábiles de *Piroplasma bigeminum* en el bovino. **[Splenectomy and *Babesia bigemina* infection in**

cattle.]—*Rev. Med. vet., Caracas.* **11,** Nos. 3 & 4. pp. 325-328. 2311

Two indigenous 5-month-old calves in which no parasites were demonstrable in the r.b.c. were splenectomized; after 11 days *B. bigemina* were present in 80% of the r.b.c., there was haemoglobinuria, and both calves died in 24 hours.—F. E. W.

Tsur, I., Zaga, I., Neuman, M. & Senft, S. (1953). **[The chemotherapy of piroplasms. IV. The influence of chloroquine sulfate on *Theileria annulata* of cattle.]**— *Refuah Vet.* **10,** 7-9. [In Hebrew.] [English summary p. 34. Abst. from English summary.] 2312

The administration of 2·5–20 mg./kg. body wt. chloroquine sulphate had no therapeutic effect on *Th. annulata* infection in 16 cattle. Intramuscular injection caused an inflammatory reaction at the site of injection.—R.M.

Rossi, P & Demeusois, P. (1953). Anaplasmose bovine indigène. **[Anaplasmosis of cattle in France.]**—*Bull. Acad. vét. Fr.* **26,** 35-37. 2313

Results of the laboratory examination for blood changes and *in vitro* culture of material from anaplasmosis infected cattle. [See also *V.B.* **24,** 1468.]—J.D.

Price, K. E., Poelma, L. J., Hastings, J. W., Sr. & Mitchell, J. I. (1954). **The practical application of the complement-fixation test for anaplasmosis.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 90-97. [Authors' summary modified.] 2314

Seventy-five cattle in 3 herds were subjected to 3 c.f. tests for anaplasmosis, at intervals of approx. 2 months. Fifty-four gave a negative reaction to all three tests. This negative status was verified by the s/c inoculation of pooled blood into susceptible calves. Eight animals gave a suspicious reaction to one or more of the 3 tests. The pooled blood from this group was found to produce anaplasmosis following injection into a susceptible calf. One animal having a negative history of anaplasmosis, and serum positive to all 3 c.f. tests was proved to be infectious by subinoculation of blood into a susceptible calf. One of the 7 animals having a history of anaplasmosis and giving a positive reaction to 3 c.f. tests was selected at random as a control. Subinoculation of blood from this animal produced anaplasmosis.

From the results obtained, it would appear that the c.f. test for anaplasmosis when properly conducted would be efficient as a means of controlling the spread of this disease in a herd.

Tsur, I. (1953). **[Experiments in immunization with anaplasma.]** — *Refuah Vet.* **10,** 51-53. [In Hebrew. Abst. from English summary p. 91.] 2315

T. described experimental work which led to the immunization of 15,000 cattle in Israel against anaplasmosis by the i/v or s/c injection of blood containing *A. centrale,* with satisfactory results. There was no cross-immunity between *A. ovis* from goats and *A. centrale* and *A. marginale* from cattle.—R.M.

Borg, K. (1953). **Toxoplasmosis in hares and capercaillie in Sweden during the years 1948-1952.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 406-409. [In English. French and German summaries.] 2316

Toxoplasma infection was observed in 48 out of 531 mountain hares (*Lepus timidus*) and in 131 out of 390 capercaillie (*Tetrao urogallus*) examined at the State Institute of Veterinary Medicine, Stockholm.—R.M.

Studić, D. (1953). Histološki nalaz kod toksoplazmoze zečeva uginulih u prirodi. (Izvadak iz disertacijske radnje.) **[Histology of toxoplasmosis in hares found dead in the field.]** —*Veterinaria, Sarajevo.* **2,** 352-362. [In Croat. Abst. from English summary.] 2317

S. described the macroscopic and microscopic findings in 12 hares which had died from *Toxoplasma* infection, and compared them with those observed in toxoplasmosis of other animals. He discussed features which may be used for the diagnosis of the disease, in cases where *Toxoplasma* cannot be found.—R.M.

Westphal, A. & Palm, G. (1953). Latente Toxoplasmainfektionen im Tierversuch als diagnostisches Hilfsmittel. I. Technik und Anwendung der Methode bei epidemiologischen Untersuchungen. **[The use of experimental latent *Toxoplasma* infection in epidemiological studies.]**—*Z. Tropenmed. u. Parasit.* **4,** 322-338. [Abst. from English summary.] 2318

Latent *Toxoplasma* infection could be set up in mice and hamsters by injection of c.s.f. from infected human patients; during such latent infection hamsters gave positive reactions to the Sabin-Feldman test, to the Westphal c.f. test and to a histological liver test described by the authors. Using hamsters as test animals, latent infections were transmitted by fleas from infected rats, mouse faeces, urine of mice and g. pigs, material from intestinal ulcers in a silver fox, milk from infected rats and bitches, and

material from intra-uterine infections in mice and in human patients. A positive diagnosis of placental infection was obtained by this method in a patient who gave a serological reaction, and in the organs of a 6-month human embryo.

Spisni, D. (1953). Prove per rilevare le presenza di alcuni aminoacidi in infusori ciliati del rumine mediante metodi istochimici. **[Determination of amino-acids present in infusoria of the rumen by histo-chemical methods.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 144-149. [English and French summaries.] **2319**

S. gave details of the methods employed for the detection of amino acids in ruminal infusoria. Tryptophane was not found in the infusoria, but they gave positive reactions for the α-amino acid group. Tests for arginine and tyrosine, although not absolutely specific, pointed to the presence of those amino acids in the material studied. The reaction for the total sulphydryl group was negative or very slightly positive.—I. W. Jennings.

See also absts. **2461** (toxoplasmosis in dogs); **2579** (report, Canada); **2580** (report, India); **2584** (report, U.S.A.).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

Mészáros, J. (1954). A száj- és körömfájás virusának disszociációjáról. **[Dissociation of the virus of foot and mouth disease.]**—*Mag. állator. Lapja.* **9,** 5-7. [English and Russian summaries. Abst. from English summary.] **2320**

M. described the transformation of F. & M. disease virus type O into type A_5 during g. pig passage.—R.M.

Basset, J. (1953). Fièvre aphteuse.—Vaccins et vaccination. Faillite de la vaccination pour la prophylaxie. **[Failure of vaccination to control foot and mouth disease.]**—*Rev. Méd. vét.* **104,** 593-606. **2321**

B. is of opinion that mass vaccination is impracticable for the control of F. & M. disease in France. The reasons given are (a) that most commercially produced vaccines contain an inadequate quantity of virus; (b) the vaccine, being a living one, may be a source of infection; (c) because of the interference phenomenon vaccines containing more than one type of virus are unsatisfactory; (d) he considers that the use of vaccines encourages the development of variant types of virus; (e) as the immunity is of short duration repeated injections are necessary and the cost in money and labour is prohibitive; (f) a considerable proportion of vaccinated cattle fail to develop immunity; (g) field observations in his opinion support the view that carriers of infection do exist; and (h) subclinical infections are not uncommon after vaccination.

He considers that the attempt to make vaccination compulsory in France has failed, it has been very costly and the only section of the community which has benefited has been the manufacturers of vaccine.

He discussed the results achieved in Mexico and emphasized that in Mexico vaccination was combined with slaughter and burning of affected and in-contact animals and very stringently enforced quarantine. The campaign lasted five years and cost more than 125 million dollars. In France B. stated that the enforcement of sanitary measures had been so inadequate that they had been useless.

The results obtained in Canada in 1952 are cited as an example of the value of the slaughter policy.—M.C.

Henderson, W. M. & Galloway, I. A. (1953). **The use of culture virus in the preparation of foot-and-mouth disease vaccine.**—*J. Hyg., Camb.* **51,** 546-558. [Authors' summary slightly modified.] **2322**

In 3 cattle vaccination experiments, with 3 strains of the virus of F. & M. disease, it was shown that virus passaged in culture in cattle tongue epithelial tissue was as effective an antigen as virus passaged in cattle. With two virus strains, the virus content of the culture at the peak of infectivity was about the same as that of vesicle epithelium from the tongues of reacting cattle. Variable and less satisfactory results were obtained with the third strain, but one culture passage yielded tissue of sufficiently high virus content for the preparation of vaccine of adequate potency. No modification in the antigenic behaviour of the strains was detected as a result of passage in culture.

Möhlmann, H., Fuchs, F., Schmidt, D. & Winkler, W. (1953). Zur Massenzüchtung von Maul- und Klauenseuchevirus an der Rinderzunge. **[Mass-cultivation of foot and mouth disease virus in the bovine tongue.]**—*Arch. exp. VetMed.* **7,** 1-8. **2323**

The authors examined factors influencing the yield of F. & M. disease virus-containing material (vesicles and lymph) obtained from the tongues of cattle infected by intralingual inoculation of virus suspension for the purpose of

vaccine production. The yield per kg. body weight decreased with increasing body weight. Out of 4,500 cattle inoculated, 325 (7%) did not develop F. & M. disease.—R.M.

FAGAN, R. (1953). **Rabies, an epidemiological analysis.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th,* 1952. pp. 394-409. 2324

A critical review of available data, followed by a discussion of the problems of rabies control in the U.S.A. F. showed that the evidence for the efficacy of immunization campaigns has always been suspect because these campaigns were accompanied by much stricter control of dogs and removal of strays. He discussed the special problems when the source of infection is a wild species.—F. B. LEECH.

YOUNG, K. S. (1953). **Texas wildlife rabies, its epidemiology and control, 1946 through 1951.**—*Proc. 89th Ann. Meet. Amer. vet. med Ass. Atlantic City. June 23-26th.* 1952 pp 416-417. Discussion pp 417-419. 2325

Y. described the outbreak of rabies amongst foxes and skunks in Texas which began in 1946, and discussed control measures. [See also *V.B.* **22,** 381.]—R.M.

ANON. (1952). **Rabies as a cause for man-eating propensities of tiger.**—*Indian med. Gaz.* **87,** 183-184. 2326

The suggestion that rabies evokes man-eating propensities in tigers was criticized mainly on the contentions that tigers become man-eaters only through stress of circumstances, that the intelligence displayed by man-eating tigers could not be expected of rabid tigers, and that there was no authentic record of rabies in real man-eaters.—R. N. MOHAN.

SUGIMURA, K. *et al.* (1952). **[The alteration of pathogenicity and antigenicity of rabies virus sensitized with ultrasonic waves.]**—*J. Jap. vet. med. Ass.* **5,** 391-394. [In Japanese.] 2327

Pathogenicity and antigenicity of rabies fixed virus were increased following exposure to ultrasonic waves at 700 kilocycles/sec. for one min. or less, but with increased length of exposure the virus gradually became attenuated and it was inactivated after exposure for 30 min.—KOGI SAITO.

REAGAN, R. L., DAY, W. C., SANSOME, F. M. & BRUECKNER, A. L. (1953). **Early appearance of rabies virus in the brain of hamsters exposed by rectal instillation.**—*Cornell Vet.* **43,** 100-103. 2328

The hippocampus of hamsters contained Negri bodies 24 hours after rectal instillation of strain V644 of rabies virus, although symptoms did not appear until the sixth day.

—F. B. LEECH.

REAGAN, R. L., STRAND, N. & BRUECKNER, A. L. (1954). **Rabies street virus strains in the Syrian hamster.**—*Amer. J. trop. Med. Hyg.* **3,** 57-58. [Authors' summary modified.] 2329

Hamsters exposed rectally to 5 rabies virus strains showed an incubation period between 5 to 8 days in comparison to hamsters exposed intraocularly in which the incubation period was between 14 to 20 days. Brains removed from hamsters showing rabies symptoms contained numerous Negri bodies.

BÉQUIGNON, R. & VIALAT, C. (1953). Contrôle des vaccins antirabiques par épreuve sur le lapin. **[Testing rabies vaccines in rabbits.]**—*Ann. Inst. Pasteur.* **84,** 529-531. 2330

The routine tests of the immunizing power of a phenolized vaccine are made on rabbits which receive the vaccine subcutaneously and are subsequently challenged with fixed virus. The authors gave useful data on the results of these tests.—F. B. LEECH.

BLUMENTHAL, H. T., GREIFF, D., CHIGA, M. & PINKERTON, H. (1953). **The effect of X-radiation on the multiplication of influenza A virus in embryonated eggs.**—*J. exp. Med.* **97,** 135-137. 2331

Eggs were irradiated with X-rays and inoculated 18 hours later with influenza A virus. The authors claim that the curves of infectivity titres of the eggs were changed by this treatment. [The graphs seem to bear out this conclusion only for the group of eggs which received 750 r.]—A. MAYR-HARTING.

TAMM, I., FOLKERS, K. & HORSFALL, F. L., JR. (1953). **Inhibition of influenza virus multiplication by alkyl derivatives of benzimidazole. I. Kinetic aspects of inhibition by 2,5-dimethylbenzimidazole as measured by infectivity titrations. II. Measurement of inhibitory activity by hemagglutination titrations.**—*J. exp. Med.* **98,** 219-227 & 229-243. 2332

The compound on addition to cultures of influenza virus caused up to 99% inhibition of multiplication. The authors described the use of haemagglutination titrations to measure the activity of the compound in inhibiting the Lee strain of influenza B virus.—W. S. MARSHALL.

TAMM, I., FOLKERS, K., SHUNK, C. H., HEYL, D. & HORSFALL, F. L., JR. (1953). **Inhibition of influenza virus multiplication by alkyl de-**

rivatives of benzimidazole. III. Relationship between inhibitory activity and chemical structure.—*J. exp. Med.* **98**, 245-259. 2333

Increases in the powers of inhibition of influenza virus by benzimidazole were possible by extensive substitution of methyl groups in the benzene or imidazole rings. The authors described and discussed the more active compounds.—W. S. MARSHALL.

HIRST, G. K. & GOTTLIEB, T. (1953). **The experimental production of combination forms of virus. I. Occurrence of combination forms after simultaneous inoculation of the allantoic sac with two distinct strains of influenza virus. II. A study of serial passage in the allantoic sac of agents that combine the antigens of two distinct influenza A strains.** — *J. exp. Med.* **98**, 41-52 & 53-70. 2334

Simultaneous inoculation of two pairs of influenza A strains produced subsequently virus which had its haemagglutinin inhibited by sera specific for each of the parent forms.

Three distinct forms of combination virus were demonstrated following prolonged passage in the egg of the product of a double infection of the allantoic sac with Melbourne and WSN viruses.—W. S. MARSHALL.

FONG, J. & BLUM, B. (1953). **Action of mustards on interfering, hemagglutinating and eluting capacities of influenza A (PR8) virus.**—*J. Immunol.* **71**, 26-29. 2335

A partial destruction of the interfering capacity of influenza A (PR8) virus occurred in the presence of 5×10^{-3} M. cyclo or chloro mustard, but the haemagglutination-elution mechanism was not greatly affected. The order of loss of influenza virus properties on exposure to mustards appeared to be similar to that for increasing doses of irradiation—infectivity, toxicity, interfering capacity, haemagglutination-elution and antigenicity.

—C. A. E. BRIGGS.

FISET, P. & DONALD, H. B. (1953). **A method for influenza antibody absorption.**—*Brit. J. exp. Path.* **34**, 616-620. [Authors' summary modified.] 2336

The authors described a technique for influenza antibody absorption. Virus particles adsorbed on fowl r.b.c. in such a way that they cannot readily be removed will absorb antibody. The method offers several advantages over previous techniques and should prove useful in the study of antigenic relationships among strains of influenza virus.

MCCREA, J. F. (1953). **Studies on influenza virus receptor-substance and receptor-substance analogues. I. Preparation and properties of a homogeneous mucoid from the salivary gland of sheep.**—*Biochem. J.* **55**, 132-138. 2337

The author described the isolation from the submandibular glands of sheep of a homogeneous mucoprotein with high antihaemagglutinin activity against influenza B virus. He described in detail the analysis and properties of the mucoid, and discussed its relationship to red-cell virus receptors and other soluble mucoid antihaemagglutinins.—C. A. E. BRIGGS.

POND, W. L., RUSS, S. B., LANCASTER, W. E., AUDY, J. R. & SMADEL, J. E. (1954). **Japanese encephalitis in Malaya. II. Distribution of neutralizing antibodies in man and animals.** —*Amer. J. Hyg.* **59**, 17-25. [Authors' summary modified.] 2338

Of 156 sera collected in 1951 from lifelong Malayan residents 115 contained significant amounts of neutralizing antibodies against Japanese encephalitis (JE) virus. Of 74 sera from persons living less than 3 years in Malaya, only 4 had positive neutralizing indices against the agent.

The majority of pigs, bovine and equine animals in Malaya possess neutralizing antibodies against JE virus, as do an appreciable number of the dogs and goats.

Thirty-six of 54 sera obtained from lifelong residents of North Borneo possessed neutralizing antibodies against JE virus.

Sera from the indigenous peoples of Malaya and Borneo neutralize the Murray Valley and West Nile viruses, but such sera appear to be only those which also neutralize JE virus. Hence, it is assumed for the time being that Japanese encephalitis virus is the sole member of the Japanese-Murray Valley-West Nile-St. Louis group of agents which is prevalent in Malaya and Borneo.

TAJIMA, M. (1953). **[Neuro-histopathological studies on epidemic equine encephalomyelitis (Japanese equine encephalitis).]**—*Vet. Res., Japan.* **1**, Suppl. to No. 1. pp. 64. [In Japanese. Abst. from English summary.] 2339

T. described in detail the histological findings in the central nervous system of 56 cases of equine encephalomyelitis, and classified them into 3 pathological stages—leucocytic infiltration, absence of leucocytes, and transitional stages. Perivascular cuffing and degeneration of nerve cells was present in all cases. No inclusion bodies were observed.—R.M.

HANSON, R. P., SCOTT, G. R., FERRIS, D. & UPTON, E. (1954). **Eastern equine encephalomyelitis in Wisconsin.**—*Amer. J. trop. Med. Hyg.* **3**, 54-56. [Authors' summary copied *verbatim*.] 2340

Eastern equine encephalomyelitis virus was isolated from a horse in south-central Wisconsin during August 1952. The disease was limited to a few horses in a small area of swampy country. Man was not involved.

SCRIVANI, R. P., REEVES, W. C. & BROOKMAN, B. (1953). **Duration of activity of Western equine encephalitis neutralizing antibodies in *Aedes nigromaculis* and *Culex tarsalis*.**—*Amer. J. trop. Med. Hyg.* **2**, 457-463. 2341

Four different pools of "clean" mosquitoes from batches which had fed on cotton-wool pads soaked in rabbit immune serum and on serum or whole blood from an immune human volunteer, were frozen in sealed tubes at intervals of up to 65 hours after feeding. They were ground and suspended in inactivated normal rabbit serum and saline. After centrifugation and incubation of the supernatant fluid for one hour and for 24 hours at 4°C. it was used in neutralization tests against the F199 strain of Western equine encephalitis in mice. It was found that ingested antibodies would not interfere with isolation of virus from infected mosquitoes if the latter were held alive at room temperature for 24 hours before freezing.—W. S. MARSHALL.

LÜBKE, A. (1952). Über die Virusanämie des Pferdes. Beitrag zur Verbreitung in Südwürttemberg-Hohenzollern und zur Pathogenese. **[Equine infectious anaemia in South-West Germany.]**—*Mh. prakt. Tierheilk.* **4**, 541-551. 2342

Over a period of six and a half years L. examined 250 fatal cases of equine infectious anaemia from a population of 43,000 horses in the South Württemberg-Hohenzollern region of S.W. Germany. He discussed the problem of carriers and the latent forms of the infection with the effects of "stressor agents", and reviewed the pathology.—E.V.L.

IRIE, R. & KONNO, S. (1952). **[Report on one case of the fetus of mare affected with equine infectious anaemia.]**—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo*. No. 25. pp. 93-103. [In Japanese and English.] 2343

A pregnant mare spontaneously infected with equine infectious anaemia aborted following inoculation *per os* with *Salmonella abortus-equi*. Examination of the aborted foetus revealed no sign of infection with E.I.A., but horses inoculated with a suspension prepared from the viscera of the foetus developed typical symptoms. It appears that the virus can pass through the placenta.—KOGI SAITO.

MORETTI, B. (1947.) Studio del midollo osseo, prelevato mediante sternopuntura, in cavalli ammalati di anemia infettiva. **[Study of the bone marrow, sampled by sternal puncture, of horses with equine infectious anaemia.]**—*Atti Soc. ital. Sci. vet.* **1**, 45-57. [French and German summaries.] 2344

An account of observations on the cells of the blood and haematopoietic system of horses affected with E.I.A., the depression of granulocyte production and acceleration of erythrocyte production together with erythrocyte destruction being brought out.—B. BALDELLI.

GUARINI, G. (1954). La deviazione del complemento applicata alla diagnosi dell'anemia infettiva del cavallo. **[Complement-fixation test for equine infectious anaemia.]**—*Vet. ital.* **5**, 55-58. 2345

After comparison of the results of 496 c.f. tests with the clinical histories of the animals concerned, G. considers that the test is a valuable aid to diagnosis. The antigen used is made from the spleen of a subacute case of equine infectious anaemia.—I. W. JENNINGS.

SAKAI, T. (1952). **[Studies on nucleus-shift of leukocytes and its clinical application in equine infectious anaemia.]**—*J. Jap. vet. med. Ass.* **5**, 385-391. [In Japanese.] 2346

From observations on 17 horses spontaneously infected with equine infectious anaemia, S. confirmed that a shift of leucocytes occurs in E.I.A. and is connected with the attack of fever, anaemia, histological changes in the liver, and prognosis.—KOGI SAITO.

POTEL, K. (1953). Krankheitsablauf der infektiösen Anämie der Pferde in Leber und lymphoretikulärem Apparat nach künstlicher und natürlicher Infektion. **[Effect of equine infectious anaemia on the liver and reticulo-endothelial system, following artificial and natural infection.]**—*Arch. exp. VetMed.* **7**, 298-312. 2347

P. studied the interrelationship between lesions in liver, spleen and reticulo-endothelial system in 96 horses naturally and 148 experimentally infected with equine infectious anaemia. He stated that regressive changes in the parenchymatous tissue of liver and spleen are likely to be sequelae to circulatory disturbances brought about by stimulation of the

autonomic nervous system by the virus, but he does not exclude the possibility of direct action of the virus on the cells.—E.G.

GERLACH, F. (1953). Über Versuche einer Übertragung des Virus der Anaemia infectiosa equorum (A.I.E.) auf weisse Mäuse und Ratten. **[Experimental infection of rats and mice with the virus of equine infectious anaemia.]**—*Wien. tierärztl. Mschr.* **50,** 585-598. [English, French and Italian summaries.] **2348**

Fifty-six out of 80 mice and all of 31 rats which were injected intranasally with the virus of E.I.A. died with typical lesions in the lungs, pleura, liver and kidneys. So far diagnostic methods for E.I.A. are very deficient and no biological methods are available. This experiment may form the basis of such a test.
—W. G. SILLER.

MOHAN, R. & BAHL, M. R. (1953). **Cutaneous eruptions of rinderpest in goats.**—*Indian J. vet. Sci.* **23,** 39-42. **2349**

An outbreak of rinderpest in goats was marked by cutaneous eruptions, which subsequently developed into pustules, inside the external ears and on other parts of the body. The typical cutaneous form was reproduced in kids inoculated with infected spleen or scabs. Diagnosis was confirmed by suitable transmission tests, including cross-immunity tests.
—R. N. MOHAN.

KIUCHI, M. & INABA, Y. (1952). **[Study on so called " bovine influenza ".]**—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo.* No. 25. pp. 37-42. [In Japanese and English.] **2350**

A virus pathogenic for mice and for cattle was isolated by serial inoculations into mice or chick embryos of blood, nasal mucus, and a suspension of visceral material from cattle with " bovine influenza ".—KOGI SAITO.

WATANABE, S., MINAMIMOTO, S. & ARAUMI, W. (1952). **[Bacteriological observations on so called " bovine influenza " in Japan.]**—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo.* No. 25. pp. 49-54. [In Japanese and English.] **2351**

Study of the bacterial flora of the nasal cavity in 18 cattle with " bovine influenza " that had died or been slaughtered revealed no differences from the flora present in healthy cattle.—KOGI SAITO.

FUKATA, H. & YAMASHITA, A. (1952). **[Studies on the comparison between human and so called bovine influenza virus.]**—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo.* No. 25. pp. 43-47. [In Japanese and English.] **2352**

Following outbreaks of so-called " bovine influenza " in Kumamoto Prefecture, Japan, influenza in human beings became prevalent. Neutralization and haemagglutination-inhibition tests and inoculation of cattle with the human virus, however, failed to reveal an antigenic relationship between the two viruses.
—KOGI SAITO.

POKORNÝ, V. (1953). Léčení virové úplavice novorozených telat chloramfenikolem. **[Treatment of scours in calves caused by a virus, with chloramphenicol.]**—*Veterinářství. Brno* **3,** 211-212. **2353**

A report on successful chloramphenicol treatment in 134 of 145 new-born calves affected with virus scours. The drug was given by the mouth, a course consisting of 12 capsules containing a total of 3 g. of chloramphenicol. Treatment was spread over a period of 28 hours. The course was repeated when necessary.—E.G.

CLAXTON, B. A. (1954). **Progress in the control of swine fever.**—*Agriculture. Lond.* **60,** 473-478. **2354**

C. gave a brief history of swine fever control, covering the early method of control by slaughter and the subsequent isolation policy. He indicated the relative merits of previous policies and discussed the difficulties attending total eradication. He gave a brief description of crystal violet vaccination and its use as a further step towards control.
—G. V. LAUGIER.

ISHII, S. *et al.* (1953). **[The diagnostic value of blood examination for hog cholera.]**—*J. Jap. vet. med. Ass.* **6,** 43-45. [In Japanese.] **2355**

The authors stated that leucopenia, a pronounced shift to the left of neutrophiles and a drop in the reticulocyte count were constant findings in the blood of pigs with swine fever.
—KOGI SAITO.

GARCÍA PIRAZZI, A. (1952). Estomatitis vesicular. Algunos caracteres de cepas Venezolanas. **[Vesicular stomatitis strains from Venezuela.]**—*Gac. vet., B. Aires.* **14,** 60-65. [English summary.] **2356**

The author described the pathogenicity for g. pigs of 3 strains of vesicular stomatitis virus. Scarification of the metatarsal pad gave better results than puncture or i/d inoculation into the pad. Cross-immunity tests with the three types of F. & M. disease virus were negative.—R.M.

Mantovani, A. (1954). Coltura del virus del cimurro del cane in embrione di pollo. **[Cultivation of the canine distemper virus in the chick embryo.]**—*Vet. ital.* **5**, 19-29. [English, French and German summaries.] 2357

For the growth of distemper virus in the egg, M. recommended inoculation on the chorio-allantoic membrane as this gives a higher conc. of virus than inoculation into the yolk-sac. Moreover, lesions are produced on the membrane with the former method, but not with the latter.—I. W. Jennings.

Gorham, J. R., Leader, R. W. & Gutierrez, J. C. (1954). **Distemper immunization of ferrets by nebulization with egg adapted virus.**—*Science.* **119**, 125-126. 2358

Twenty-five young ferrets were each placed in a small box and exposed to avianized distemper vaccine in aerosol form for 3 min. For each ferret 0·6 ml. vaccine was used. They were resistant to distemper when challenged with an i/m injection of distemper virus 5 to 32 days after exposure to vaccine.—R.M.

Mark, J. H. (1953). **Epizöotiology of infectious canine hepatitis.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th,* 1952. pp. 226-228. 2359

M. briefly discussed ways in which canine virus hepatitis may be transmitted.—R.M.

Fujimoto, Y., Ohbayashi, M. & Ono, T. (1953). **[The first report of Hepatitis contagiosa canis in Japan.]**—*Vet. Res., Japan.* **1**, 125-136. [In Japanese. Abst. from English summary.] 2360

The authors diagnosed canine virus hepatitis in a litter of puppies by the presence of intramuscular inclusion bodies in the visceral organs, brain, and tonsils.—R.M.

Graesser, F. E. (1954). **Suspected case of infectious hepatitis in a mink.**—*Canad. J. comp. Med.* **18**, 30-31. 2361

Microscopic lesions in the liver of a mink that had died were similar to those found in canine virus hepatitis. Transmisison experiments were not conducted.—Thomas Moore.

Brandly, C. A. (1953). **Epizootiology of Newcastle disease.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 233-243. [In English. French and German summaries.] 2362

B. described susceptibility and resistance of fowls to Newcastle disease, the pathogenicity and resistance of the virus, and methods of spread of infection.—R.M.

Mitscherlich, E., Gürtürk, S. & Harms, F. (1953). Die Diagnose der atypischen Geflügelpest. **[Diagnosis of Newcastle disease.]**—*Zbl. VetMed.* **1**, 93-104. [English and French summaries.] 2363

P.M. examination has become unreliable for diagnosis of Newcastle disease, but 89% of cases were diagnosed histologically, 80% serologically using serum, 50% using organ extracts and 69% by virus egg culture from brain tissue: 94% of cases are diagnosed with accuracy by combined cultural and serological methods.—W. G. Siller.

Woernle, H. (1953). Das Phänomen der Autoagglutination im Blut geflügelpestkranker Tiere. **[Autoagglutination in the blood of fowls infected with Newcastle disease.]**—*Z. Hyg. InfektKr.* **138**, 66-72. 2364

W. examined the phenomenon of autoagglutination of the blood of fowls which had died from Newcastle disease. Agglutination occurred in 90 out of 200 infected fowls and in 18 out of 159 fowls which had died from other causes. [See also *V.B.* **23**, 1258.]—R.M.

Watanabe, M., Yamano, T., Mifune, R. & Inui, S. (1952). **[An occurrence of Newcastle disease (pneumo-encephalitis type) in Okayama Prefecture in Japan in 1951.]**—*24th Rep. Govt. exp. Sta. Anim. Hyg., Tokyo.* pp. 7-12. In Japanese. English summary. p. 13. 2365

In the outbreaks of Newcastle disease which occurred in Japan in July 1951, the affected birds emitted gasping and crackling sounds, nervous symptoms developing at a later stage. At P.M. examination fluid or mucus was present in the trachea, and in acute cases there was enlargement of the spleen. Histologically, encephalitis was found. A virus isolated from the brain in chick embryos was identified as Newcastle disease virus by the haemagglutination-inhibition test.

—Kogi Saito.

Parnaik, D. T. & Dixit, S. G. (1953). **Ranikhet disease in Indian partridges.**—*Indian vet. J.* **30**, 145-147. 2366

Thirty-five Indian partridges died of Newcastle disease. Diagnosis was confirmed by reproducing the characteristic symptoms and lesions in two pigeons and two fowls; two immune fowls were used as controls.

—R. N. Mohan.

Fahey, J. E. & Crawley, J. F. (1954). **Studies on chronic respiratory disease of chickens.**

II. Isolation of a virus.—*Canad. J. comp. Med.* **18**, 13-21. 2367

A virus of aetiological significance was isolated from chickens with chronic respiratory disease (C.R.D.). It was not neutralized by Newcastle disease or infectious bronchitis antisera. Embryos inoculated with this virus developed the same changes as those inoculated with the "C.R.D. agent". The virus was not affected by antibiotics and was filtrable. Mortality was typical of that in chicks hatched from hens infected with C.R.D.—R. Gwatkin.

Bedson, S. P. (1953). **The psittacosis-lymphogranuloma group of viruses.**—*Brit. med. Bull.* **9**, 226-230. 2368

A review of the general characters of the group, with detailed reference to psittacosis and lymphogranuloma venereum.—Ian Davidson.

Buttitta, P. L. & Nobili, I. (1953). Indagini sull'ornitosi in Sicilia. **[Psittacosis in Sicily.]** —*Clin. Vet., Milano.* **76**, 369-372. 2369

The authors confirmed the existence in Sicily of psittacosis in man. Three cases were found, one patient being a pigeon breeder. Complement-fixation tests revealed the infection also in pigeons, but not in fowls, sparrows nor dogs.—I. W. Jennings.

Ward, C. G. & Burge, J. P. (1952). **Psittacosis (ornithosis) following contact with pheasants. Report of a case.**—*J. Amer. med. Ass.* **150**, 217-219. [Abst. from authors' summary.] 2370

The authors discussed a case of psittacosis (ornithosis) in the owner of a pheasant ranch. The circumstances of the case gave an unusual opportunity for study of the possibility that the patient had been infected by his pheasants. C.f. tests on sera of the birds confirmed that the flock was infected. Since the patient, as far as could be determined, had not come in contact with any of the usual carriers of the disease, this was considered as strong presumptive evidence that he was infected by the pheasants. The authors suggested that the possibility of psittacosis should be considered in all cases of atypical pneumonia in which there has been exposure to pheasants.

Meyer, K. F. & Eddie, B. (1953). **Characteristics of a psittacosis viral agent isolated from a turkey.** — *Proc. Soc. exp. Biol., N.Y.* **83**, 99-101. [Authors' conclusions modified.] 2371

The authors demonstrated that the psittacosis (ornithosis) viral agent which they had isolated from a turkey is antigenically specific. The Louisiana human, the egret and the turkey strains have in common an endotoxic component probably responsible for their high virulence for man and for their broad infection spectrum. Epidemiological experience has proved such strains to be the cause of serious outbreaks of pneumonitis in inhabitants of the Louisiana bayou country [*V.B.* **16**, 2003] in poultry dressers and in laboratory workers. Until other strains isolated from turkeys have been carefully compared with other psittacosis viral agents from southeastern states of the U.S.A. it is premature to conclude that turkeys are the sole hosts of ornithosis agents of virulence greater than that of strains found in pigeons, ducks, fowls and even psittacine birds. Finally, there is no urgency to burden the unfortunate classification of the psittacosis-lymphogranuloma group with a new species when the technique of neutralization of viral activity merely suggests a specific serotype.

Doermann, A. H. (1952). **The intracellular growth of bacteriophages. I. Liberation of intracellular bacteriophage T4 by premature lysis with another phage or with cyanide.**—*J. gen. Physiol.* **35**, 645-656. 2372

Anderson, T. F. & Doermann, A. H. (1952). **The intracellular growth of bacteriophages. II. The growth of T3 studied by sonic disintegration and by T6-cyanide lysis of infected cells.**—*Ibid.* 657-667. 2373

I. D. described a method for liberating and estimating intracellular bacteriophage at any stage during the latent period by arresting phage growth and inducing premature lysis of the infected cells. The method was used in direct studies of bacteriophage infection of, and reproduction in, the bacterial cell.

II. The authors used the above method, and sonic vibration, in a study of the growth of the T3 *Bact. coli* bacteriophage. The results obtained by the two methods were in sufficiently close agreement to warrant the conclusion that both methods liberated daughter T3 particles quantitatively from prematurely lysed cells.

—C. A. E. Briggs.

Hershey, A. D., Kamen, M. D., Kennedy, J. W. & Gest, H. (1951). **The mortality of bacteriophage containing assimilated radioactive phosphorus.** — *J. gen. Physiol.* **34**, 305-319. 2374

T4 *Bact. coli* bacteriophage containing assimilated radio-active phosphorus was inactivated at a rate proportional to the specific radioactivity of the constituent phosphorus. The β-radiation from the phosphorus made a negligible

contribution to this effect. Several phages related to T4 behave similarly and all contain about 500,000 phosphorus atoms per infective particle. This, together with previous data on analytical composition, indicates a particle diam. of about 110 mμ.—C. A. E. Briggs.

I. Hayes, W. (1953). **Observations on a transmissible agent determining sexual differentiation in** *Bacterium coli.*—*J. gen. Microbiol.* **8**, 72-88. 2375

II. Cavalli, L. L., Lederberg, J. & Lederberg, E. M. (1953). **An infective factor controlling sex compatibility in** *Bacterium coli.* —*Ibid.* 89-103. 2376

I. An account of an investigation into the cause of infertility in a pair of *Bact. coli* K. 12 mutants. It was found that a non-lytic infective agent within the donor cell is essential for recombination.

II. The presence of a virus-like body not easily separable from the cells (F) is essential in productive strains (F+). Its absence (F−) from strains makes them incompatible and sterile if crossed with other F− strains. F+ can be crossed with F+ or F− strains.

—E. A. Hirsch.

Stoker, M. G. P. (1953). **Q fever in Britain.** —*Brit. med. Bull.* **9**, 231-233. 2377

S. reviewed literature on the viability and chemical composition of *R. burneti*, its behaviour in serological tests and the use of such tests in detecting antibodies in cows' milk. He described the disease in man and discussed the incidence of human infection and its source.

—Ian Davidson.

Manjrekar, S. L. (1951). **Rickettsiosis in sheep and goats, in the State of Bombay.**—*Thesis, Poona.* pp. 77+iii. [Mimeographed.] 2378

M. described an enzootic disease which was first noticed in an imported Merino ram and in Angora goats introduced to two sheep-breeding farms in Bombay State. Other cases occurred in rams of the Deccani breed bred on the Poona farm. The disease was characterized by sudden onset, shivering and a thermal reaction usually lasting about a week and sometimes followed a week later by a second less severe reaction. When bronchial and pulmonary complications followed the temperature often remained high for a fortnight. Anorexia occurred from the beginning of the temperature reaction and, at the height, animals showed evidence of pain in the limbs, chest and loins. A few animals developed photophobia and most had an anxious expression; the eyes were often watery and half-closed. When the temperature exceeded 108° there was marked prostration. Sneezing, coughing, coryza and congestion of the fauces occurred in half the naturally-affected animals. Apart from congestion of the visible mucous membranes there were no circulatory symptoms, and except for anorexia and hardening of the faecal pellets during the period that the temperature was high no digestive upset was detected.

All the cases recovered and as none were slaughtered no P.M. examinations were made. Cases which developed pneumonia might have died had they not been treated with penicillin.

The disease was shown to be due to a *Rickettsia*, related to *R. mooseri*, which could be seen in the monocytes of the circulating blood during the febrile reaction. Inoculation of such blood i/p into g. pigs induced a thermal and scrotal reaction. The *Rickettsia* were demonstrated in smears from the peritoneum, tunica vaginalis and brain. The susceptibility of the g. pig differentiates the *Rickettsia* from that of tick-borne fever and from *R. ovina* and M. names it *R. belgaumii*. Material from g. pigs reproduced the disease in 4 sheep and 4 goats.

Sera from sheep that had recovered agglutinated OX19 to a titre of 1:50–1:500, nine out of 12 sera going to 1:250 or 1:500. Only three of the 12 agglutinated OX2 as far as 1:50 and there was no agglutination with OXK. Titres against OX19 developed between the 8th and 21st days after infection and persisted 3–7 months. A survey of 560 samples of sheep and goat sera from farms, Agricultural schools and villages in the State yielded only one with a titre of 1:250 with OX19 and three with " low " titres.

Neutralization tests with sheep sera showed that this prevented the reaction of g. pigs to *R. belgaumii*, but not to *R. mooseri*. Cross immunity experiments in g. pigs, however, showed that each species immunized against infection by the other injected a month later.

White rats harboured the *Rickettsia* for more than 300 days and provided a useful method of maintaining the strain in the laboratory.

A suspension of ticks collected from a ram during the febrile period was inoculated into a healthy ram. A temperature reaction occurred, *Rickettsia* were demonstrated in blood smears and g. pigs were infected with the blood. No attempt was made to transmit by feeding ticks on sheep. The prevalent species on the farms were recorded as *Haemaphysalis hispinosa* and *Hyalomma aegyptium*.

[Apart from Q fever, the only rickettsial dis-

eases of ruminants transmissible to g. pigs are those described by Pellissier *et al.* (*V.B.* **22,** 1364) and by Hughes, M. H. (*V.B.* **24,** 1138). These do not induce a scrotal reaction.]

—J. Richard Hudson.

Mantovani, A. & Benazzi, P. (1951). L'isolamento della Coxiella burnetii dal cane naturalmente infetto mediante la zecca Rhipicephalus sanguineus. **[Isolation of *Rickettsia burneti* from a dog naturally infected by *Rhipicephalus sanguineus*.]**—*Atti Soc. ital. Sci. vet.* **5,** 363-368. [French and German summaries.] 2379

R. sanguineus engorged on naturally infected dogs harbours *R. burneti* for at least 7 days. The eggs of the ticks may also be infective.—I. Martini.

Burnet, McF. (1953). **Ecology of virus diseases.**—*Brit. med. Bull.* **9,** 173-176. 2380

B. discussed the ways in which viruses can survive in animal populations, the conditions necessary for each method of survival and the results of transfer of a virus to a new host.

—Ian Davidson.

Polson, A. (1953). **Weight relationships among animal viruses.** [Correspondence.]—*Nature, Lond.* **172,** 1154-1155. 2381

The particle size of the smaller animal viruses, estimated by ultra-centrifugal and diffusion measurements coupled with biological assay, fall into three groups having sedimentation constants respectively of 70, 170, and 450 Svedbergs with a very small range within each group. Their volumes, and consequently their particle weights, are proportional to the cube of their diameter measured from electronic micrographs. These volumes are approx. in the ratio 1 : 4 : 16 for the three groups suggesting that the viruses in each group may be built from the same number of sub-units.—A. Ackroyd.

Hurst, E. Weston. (1953). **Chemotherapy of virus diseases.** — *Brit. med. Bull.* **9,** 180-185. 2382

A review of the activity of sulphonamides, antibiotics and other organic chemicals against viruses in tissue culture, the chick embryo, experimental animal and man.—Ian Davidson.

See also absts. **2165** (bacteriophage); **2182** (filtrable forms of anthrax bacilli); **2460** (recent advances at Weybridge); **2461** (distemper); **2463** (cattle diseases in the Punjab); **2579** (report, Canada); **2580** (report, India); **2583** (report, British Honduras); **2584** (report, U.S.A.).

IMMUNITY

Coombs, A. M. & Coombs, R. R. A. (1953). **The conglutination phenomenon. IX. The production of immuno-conglutinin in rabbits.** —*J. Hyg., Camb.* **51,** 509-531. [Authors' summary modified.] 2383

The authors studied the conditions necessary for the production of immuno-conglutinin in rabbits.

The inoculation of complement adsorbed on sensitized cells stimulates the production of immuno-conglutinin. The authors termed this procedure ' hetero-stimulation '.

Immuno-conglutinin also results from the inoculation of untreated but killed bacteria. They termed this procedure for its production, ' auto - stimulation '. Gram-negative bacteria appear to be more effective stimulants than Gram-positive bacteria. Soluble antigens did not appear to be as effective as bacterial suspensions.

The necessity for clarifying the part played by immuno-conglutinin in *in vivo* immune processes was emphasized.

Richter, G. W. (1952). **Experimental hyperglobulinemia. The effect of injected ribonucleotide on serum globulin levels in rabbits undergoing immunization.**—*J. exp. Med.* **96,** 331-346. 2384

Repeated s/c injections of sodium ribonucleate into rabbits undergoing immunization with horse serum enhanced the production of serum globulin much more than injections of either of these agents alone. The hyperglobulinaemia was due to a large increase in the serum γ-globulin and to a slight increase in the α- and β-globulin levels, but antibody titres against horse serum were not increased as compared with those in immunized controls and no specific antibodies to ribonucleate could be detected.

—A. Ackroyd.

Elberg, S. S. & Schneider, P. (1953). **Directed leucocyte migration in response to infection and other stimuli.**—*J. infect. Dis.* **93,** 36-42. 2385

The migration of g. pig leucocytes, which takes place in a micro-chamber of slowly clotting plasma, was inhibited by the addition of virulent brucella organisms. If the g. pigs had been infected with brucella, their leucocytes were no longer susceptible to the *in vitro* inhibition by the organisms. This effect on the leucocytes was noticeable an hour after infection

and persisted for some weeks. Cortisone treatment of the animals restored the leucocytes to their normal sensitivity. By spinning down the cells and exchanging the plasma between blood samples of healthy and of infected animals heterologously, the inhibition, or resistance to it, could be shown to be a characteristic of the leucocytes.—A. MAYR-HARTING.

ROMANI, J. D. (1952). Etude de l'action de la 17-hydroxy-11-déhydro-corticostérone (cortisone) et de la désoxycorticostérone (DOCS) sur le phénomène de migration intra-tissulaire des polynucléaires éosinophiles chez le rat et chez le cobaye. **[Action of cortisone and of deoxycortone on the migration of eosinophiles into the tissues.]**—*C. R. Soc. Biol., Paris.* **146,** 993-996. **2386**

An account of a study of the distribution of eosinophiles in the organs and tissues of rats fed with cortisone and of g. pigs and rats injected with deoxycortone. Cortisone exerted a lytic action on eosinophile cells both in the blood stream and in the tissues. In animals injected with deoxycortone they were present to the normal extent in the connective tissues and lymph nodes: in g. pigs injected with an overdose, however, they invaded the glomerular zone of the renal cortex in a preferential manner, the invaded tissues exhibiting degeneration.—A.S.

BENNETT, I. L., JR. & BEESON, P. B. (1953). **The effect of cortisone upon reactions of rabbits to bacterial endotoxins with particular reference to acquired resistance.** — *Johns Hopk. Hosp. Bull.* **93,** 290-308. [Authors' summary modified.] **2387**

The authors studied the influence of A.C.T.H. and cortisone upon reactions to bacterial endotoxins (fever, leucopenia, the Shwartzmann reaction) in rabbits. The febrile response to a single injection of endotoxin may be decreased, increased or unchanged by treatment with these hormones, depending upon dose of pyrogen, dosage of hormone and time of administration. They presented evidence that the occasionally observed accentuation of fever by cortisone is not the result of endogenous adrenal suppression.

Although acquired resistance to pyrogen fever is abolished by thorotrast, cortisone does not interfere with this tolerance. Acquired resistance to the dermal Shwartzman reaction, however, is promptly removed by either cortisone or thorotrast. Neither A.C.T.H. nor cortisone influenced the degree of leucopenia produced by endotoxin injection.

The authors pointed out that the difference in the effects obtainable with these hormones in fever necessitates a careful definition of dosage schedules in discussing their antipyretic effect. They discussed the difference in the effects of thorotrast and of cortisone upon tolerence to fever and resistance to the Shwartzman reaction and suggested that a separate antipyretic effect of cortisone may at times mask its accentuation of endotoxin injury in experiments using fever as a criterion.

GAGLIARDI, G. & PETEK, M. (1952). La malattia emolitica del mulo neonato. **[Haemolytic jaundice in the mule foal.]**—*Zooprofilassi.* **7,** 169-179. [English, French, German and Spanish summaries.] **2388**

The disease in the new-born mule presents the same clinical and serological features as in the foal. The authors gave details of an outbreak.—R.M.

LIPTON, M. M. & FREUND, J. (1953). **Allergic encephalomyelitis in the rat induced by the intracutaneous injection of central nervous system tissue and adjuvants.**—*J. Immunol.* **71,** 98-109. **2389**

Allergic meningo-encephalomyelitis was induced in white rats by intracutaneous, but not subcutaneous, injections of suspensions of brain or spinal cord combined with liquid paraffin and killed mycobacteria; the presence of the latter, or of *Nocardia asteroides,* was essential. Spinal cord was equally effective from the rat or g. pig, but rat brain and rabbit spinal cord were less effective; tissue other than c.n.s. was not effective. Encephalitis was produced in 2 out of 7 g. pigs by intracutaneous injection of rat spinal cord plus adjuvants.—C. A. E. BRIGGS.

See also absts. **2185** (anthrax); **2191** (allergic reaction to tuberculin); **2201-2204** (TB.); **2220** (swine erysipelas); **2228** (immunological study of *Pasteurella*); **2238** and **2241** (serological diagnosis of *S. abortus-equi* infection); **2242-2243** (equine paratyphoid vaccine); **2248** (agglutination test in pullorum disease); **2250** (diagnosis of brucellosis); **2251** (slow agglutination test in brucellosis); **2253** (a non-specific brucella-agglutinating substance in bovine serum); **2256** (diagnosis of human *Brucella* infection); **2265** (complement-fixing antigens from leptospira); **2271** (production of tetanus antibodies in dogs); **2295** (effect of desiccation on antigenic structure); **2302** (preparation of trypanosoma antigens); **2315** (anaplasmosis); **2321-2323** (F. & M. disease); **2327-2330** (rabies); **2331-2337** (influenza virus); **2338** (Japanese encephalitis); **2341** (Western equine encephalitis); **2345** (equine infectious anaemia); **2354** (swine fever); **2357-2358** (dog distemper); **2363-2364** (Newcastle disease); **2435** (Rous virus-neutralizing antibodies in avian serum); **2461** (toxoplasmosis, distemper, leptospirosis).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

RYCKMAN, R. E., AMES, C. T. & LINDT, C. C. (1953). **A comparison of aldrin, dieldrin, heptachlor and DDT for control of plague vectors on the California ground squirrel.**—*J. econ. Ent.* **46**, 598-601. **2390**

The av. number of fleas per squirrel was determined before and after insecticide application. Over 98% control was obtained with aldrin, dieldrin and heptachlor. D.D.T. was less effective.—BERYL A. KAY.

STONES, L. C., WOOD, J. C. & HART, C. B. (1954). **The use of dieldrin for sheep maggot fly control.**—*Vet. Rec.* **66**, 183-187. [Abst. from authors' summary.] **2391**

Dieldrin was tested in 3 trials as an agent for control of *L. sericata*. Initially a controlled testing technique was employed to determine the value of the insecticide at different concentrations as compared with other agents commonly used. Subsequently the findings from these tests were confirmed in field trials on nearly 30,000 sheep.

Dieldrin possesses outstanding larvicidal properties and is remarkably persistent in the fleece and therefore provides very effective control, both against body strike and crutch strike, for a prolonged period. Sheep dipped in a dieldrin emulsion, or water suspension at a wash concentration of 0·05% were protected against body strike for 12–16 weeks, and against crutch strike for 8–10 weeks. It is uncertain whether any advantage is gained by the use of higher concentrations.

JETTMAR, H. M. (1953). Über bakteriostatische Stoffe im Darm der Hypodermalarve. **[Bacteriostatic substances in the intestines of *Hypoderma* larvae.]**—*Z. Hyg. InfektKr.* **137**, 61-66. **2392**

A bacteriostatic principle was demonstrated in the intestine of *Hypoderma* larvae; it was stable, water-soluble and heat-stable. It was active against a number of Gram-positive bacteria, but with a differing spectrum from that shown by penicillin. Of 10 staphylococcal strains tested, 4 were very sensitive, 2 were weakly sensitive and 4 were not sensitive. In *B. anthracis* there was a transient weak sensitivity during the first 12 hours. *Sarcina* strains were the most sensitive bacteria.

No such activity was demonstrable in the fat-bodies, coelomic fluid, Malpighian bodies or chitinous covering of the larvae.

—R. B. HOLCOMBE.

DETHIER, V. G. (1954). **Notes on the biting response of tsetse flies.**—*Amer. J. trop. Med. Hyg.* **3**, 160-171. [Author's summary slightly modified.] **2393**

The physiology of the biting responses of three species of tsetse flies was investigated. Specimens of *Glossina palpalis, G. morsitans,* and *G. brevipalpis* were attached by the wings to wax-tipped applicator sticks and subjected individually to a variety of stimuli. Their reactions were compared to those of free-flying caged flies. The normal biting response includes characteristic movements of the mouthparts, salivation and defaecation. Heat is the prime stimulus to feeding although contact of the feet with a substrate may alone elicit a low level of response, provided the substrate is neither too smooth nor otherwise repellent. The antennae are the principal site of thermoreceptors mediating the feeding response. Neither odour nor chemicals in contact with the tarsi are effective stimuli. Responsiveness increases as the fly becomes more hungry, but as the final stages of starvation approach the fly becomes refractory. The repellent " 622 " (6 parts dimethyl phthalate, 2 parts indalone, 2 parts 2-ethyl hexanediol-1,3) prevents the feeding of caged free flying tsetses; however, attached flies will feed through this compound. It appears to act as an olfactory repellent.

THOMPSON, B. W. (1953). **Aircraft applications of insecticides in East Africa. III. Atmospheric turbulence in woodland.**—*Bull. ent. Res.* **44**, 611-626. [Author's summary slightly modified.] **2394**

An effort was made to determine the best conditions to achieve maximum saturation and persistence of small droplet insecticide (5–200 μ droplet diam.) within a type of African woodland. The problem is entirely one of atmospheric turbulence within the woodland. No attempt was made, or is likely to be fruitful, to introduce a detailed or mathematical argument. The relevant factors pertaining to atmospheric turbulence were observed and in some cases were directly compared with simultaneous observations made in the open.

The absence of zero wind speeds, considerations of changing lapse rates, bi-directional wind vane records, and visual observations of smoke, all combine to suggest that when conditions of calm or light winds exist in the free air, there is, under moderately dense woodland canopies, an almost continuous and slow transfer of air between the canopy and the ground, these movements tending towards laminar or sheet flows.

With stronger winds, eddying about the trees swamps these gentle movements and air motion becomes erratic and turbulent, although such turbulence is less the denser the canopy. During the daytime there is notable horizontal movement of air towards clearings where convection is at a maximum.

Persistence and high saturation of insecticide will be achieved when conditions are quiet outside, and, because of slow but widespread air movements, good distribution will be attained in these conditions. The lighter the woodland canopy, however, the smaller these air movements become, since they result from differential heating or cooling between canopy and ground, and the more valuable become aircraft applications relying upon the sedimentation of insecticide. Very dense canopies could probably be satisfactorily treated from the ground even during the highest lapse period of the tropical day.

Basu, B. C., Sen Gupta, C. M. & Menon, P. B. (1952). **Reduction in milk yield in Indian dairy cattle by arthropod invasion and its control.**—*Indian J. vet. Sci.* **22,** 51-59. 2395

Daily application of insecticidal sprays to cows for one month reduced ectoparasites and increased milk yield during the period of treatment.—R. N. Mohan.

Worden, A. N. & Jackson, A. F. McK. (1953). **Field trials with a sheep dip containing D.D.T. and benzene hexachloride in micro-crystalline form.**—*Brit. vet. J.* **109,** 190-198. [Abst. from authors' summary.] 2396

With sheep dips containing both D.D.T. and benzene hexachloride in micro-crystalline form, less is required to produce the same effective volume of wash than with suspension dips; there is a greater degree of stability of the resultant wash, an absence of solvent materials, and the toxicity hazard is lower. The authors gave details of field trials with a dip so formulated.

Taborda Duarte, A. & de Sousa, J. L. (1952). A linguatulose nos bovinos açorianos. [*Linguatula serrata* **in cattle in the Azores.**] —*Rev. Med. vet., Lisboa.* **47,** 14-29. [French summary.] 2397

Larvae of *L. serrata* were present in the mesenteric lymph nodes of 60–70% of cattle from the Azores.—I. W. Jennings.

Lees, A. D. (1952). **The role of cuticle growth in the feeding process of ticks.**—*Proc. zool. Soc. Lond.* **121,** 759-772. 2398

The cuticle of all species of adult Ixodidae grows during engorgement. In this way the dry weight of the cuticle in a female *I. ricinus* increases from 0·6 mg. to 8–10 mg., while the overall weight of the engorging tick rises from 2 mg. to 250 mg., and the surface area expands to 15 times the initial value. In most of the Argasidae this property of cuticular growth is observed only among the larval stages. In the other stages of these ticks the blood meal is accommodated by distension of the abdominal wall.—D. W. Jolly.

Borchert, A. (1953). Über die Wirkung des bei Hunden peroral und subkutan verabreichten Hexachlorcyclohexans auf die Demodexmilbe. **[Effect of orally and subcutaneously administered benzene hexachloride on demodectic mange in dogs.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 433-436. [In German. English and French summaries.] 2399

B. discussed the mode of action of benzene hexachloride when administered by mouth or by s/c injection to dogs with demodectic mange. [See also *V.B.* **21,** 2929.]—R.M.

See also absts. **2378-2379** (ticks as carriers of rickettsia); **2460** (recent advances at Weybridge); **2579** (report, Canada); **2584** (report, U.S.A.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Adbussalam, M. & Sarwar, M. M. (1953). **Schistosomiasis in Pakistan.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 18-23. [In English. French and German summaries.] 2400

The authors described infestation of horses, cattle, sheep, goats and camels with *Schistosoma indicum,* of buffaloes with *S. spindalis,* of cattle and more rarely buffaloes and sheep with *S. nasalis* (causing nasal granuloma), of sheep in the Western Himalayas with *Ornithobilharzia turkestanicum,* and *Pseudobilharzia* infestation of ducks and duck eggs. *S. indicum* was a cause of debility in sheep and goats, and in a small proportion of infested horses, but was probably not pathogenic for cattle and buffaloes. *S. spindalis* commonly occurred in buffaloes without causing appreciable symptoms or lesions, apart from petechiae in the caecum.

—R.M.

Thienpont, D., Herin, V., Fain, A. & Deramée, O. (1953). Etude clinique et histopathologique de la bilharziose canine à

Schistosoma rodhaini au Ruanda-Urundi. **[Clinical and pathological study of *Schistosoma rodhaini* in the dog.]**—*Ann. Soc. belge Méd. trop.* **33**, 487-494. [In French. Flemish summary.] **2401**

Clinical signs of *S. rodhaini* infestation in dogs include intermittent bloody diarrhoea and progressive emaciation, with an eczema-like condition of the skin in highly parasitized animals. Lesions in the liver, pancreas and small intestine are related to the deposition of eggs in these organs and consist of granulomas and tubercle-like cellular aggregations.—D. POYNTER.

CHAVARRIA, M. (1952). La cisticercosis como problema de salubridad publica en Mexico. **[Cysticercosis and public health in Mexico.]** —*Bol. Ofic. sanit. pan-amer.* **33**, 394-404. **2402**

In Mexico, the incidence of *C. cellulosae* is stated to be 8–12%, even in modern towns. As meat inspection in the country is somewhat rudimentary, C. considers that the figure is actually much higher. Bad personal hygiene; unconfined pigs on farms, streets and even in dwelling houses; primitive sewage disposal; and insufficient cooking of meat are important factors in its dissemination.—R. MACGREGOR.

BURCH, G. R. & EHRENFORD, F. A. (1953). **Canine strongyloidiasis.**—*Vet. Med.* **48**, 417-420. [Abst. from authors' summary.] **2403**

An account of the diagnosis of *Strongyloides* infestation in dogs by a flotation technique, Brief details were given of the syndrome.

POYNTER, D. (1954). **Observations on the relative increase of *Strongylus* species following the administration of phenothiazine to horses.**—*Vet. Rec.* **66**, 101-105. [Author's summary modified.] **2404**

In 40 out of 74 horses given phenothiazine in varying doses, P. demonstrated an increase in the proportion of species of *Strongylus* to larvae of other species in the faeces. This effect is transitory, the small strongyles eventually accounting, as they did before dosing, for the majority of larvae seen. Phenothiazine is the drug of choice for the small strongyle parasites of horses but its efficacy against the large strongyles is considerably less.

FARRELLY, B. T. (1954). **The pathogenesis and significance of parasitic endarteritis and thrombosis in the ascending aorta of the horse.**—*Vet. Rec.* **66**, 53-61. [Abst. from author's summary.] **2405**

F. described 4 cases of endarteritis and thrombosis at the point where the aorta joins the base of the left ventricle in horses, caused by *Strongylus vulgaris*. In two of the cases there was an associated right auricular infarction following thrombo-embolism of the right coronary artery. The other two horses died following thrombo-embolism of the common brachio-cephalic trunk and of the right coronary artery respectively. He also described another case of right auricular infarction, probably a sequel of parasitic lesions of the aortic sinuses.

He discussed the clinical aspects, the characters of the lesions, and the pathogenesis of the condition.

HERLICH, H. & PORTER, D. A. (1954). **Control of internal parasites of cattle by free-choice administration of phenothiazine.**—*Vet. Med.* **49**, 103-106. **2406**

Control of *Haemonchus contortus*, and *Oesophagostomum radiatum*, in calves, was obtained by allowing them free access to a 10% phenothiazine-mineral mixture. The maximum individual intake of phenothiazine was 3 g. daily, which occurred during the spring and summer. No effect was observed on *Trichostrongylus axei*, or on *Cooperia*, *Ostertagia*, or *Nematodirus* species.—D. W. JOLLY.

FORSYTH, B. A. (1953). **Epidemiology studies on helminthosis of sheep in southern N.S.W.** —*Aust. vet. J.* **29**, 349-356. **2407**

In southern New South Wales infestation with *Ostertagia* spp. and *Trichostrongylus* spp. increased in spring, reached a peak in summer and declined in autumn. Lambs born in the autumn experienced infestations during their first winter when nutritional conditions were good; they were not as susceptible to infestation as lambs born in the spring. Heavy infestation was associated with malnutrition and clinical trichostrongylosis was seen in the summer. The duration of heavy infestation was dependent on the time of the autumn rains which brought improved nutritional conditions. Infestation in spring and summer appeared to confer resistance to infestation during the following winter. *Chabertia ovina* and *Oesophagostomum venulosum* infestation reached peaks in late summer and declined in autumn.

—H. MCL. GORDON.

PULLAR, E. M. (1953). **The epidemiology of helminthosis in sheep in winter rainfall regions of Australia.**—*Aust. vet. J.* **29**, 357-364. **2408**

P. studied the seasonal incidence of 362 consecutive cases of verminous gastro-enteritis in sheep. The suggested standards for testing

the suitability of local climate for the spread of *Haemonchus contortus* and *Trichostrongylus* spp. are not readily applicable in Victoria. The rainfall requirements appear to be set too high and it is probable that the lower evaporation rate, and possibly a different type of pasture containing a higher proportion of plants with broad horizontal leaves which help to conserve soil surface moisture, may allow maximum development of the free-living stages of the worms, with less actual precipitation. *Trichostrongylus* spp. and *Ostertagia* spp. infestations showed a diphasic seasonal incidence with rises in summer - autumn and in late winter - early spring. Outbreaks of haemonchosis showed a typical summer incidence. The relationships between climatic conditions and the incidence of outbreaks were shown on a map of Victoria with superimposed bioclimatographs and histograms.—H. McL. Gordon.

Spedding, C. R. W. (1953). **Variation in the nematode egg content of sheep faeces from day to day.**—*J. Helminth.* **27,** 9-16. 2409

S. discussed the bearing of daily variations in the nematode egg count in sheep faeces upon the accuracy of assessment of the size of the burden.—E. G.

Eveleth, D. F., Goldsby, A. I., Bolin, F. M. & Bolin, D. W. (1953). **Effect of parasitism on conversion of carotene into vitamin A by sheep : a preliminary report.**—*Vet. Med.* **48,** 441-442. 2410

The authors presented evidence to show that worm infestation interferes with the ability of sheep to convert carotene into vitamin A.

—G. B. S. Heath.

Taylor, E. L. (1951). **Parasitic bronchitis in cattle.**—*Vet. Rec.* **63,** 859-867. Discussion: pp. 867-873. [Author's summary modified.] 2411

T. discussed parasitic bronchitis as of two distinct kinds, the " typical " and the " atypical ". The first is the familiar one of young cattle, associated with the presence of large numbers of mature worms in the terminal divisions of the bronchi. It conforms to the general conception of helminthiasis as resulting from heavy infestations. The atypical form occurs more particularly in adult animals and is generally considered to have been of increasing prevalence during recent years. The aetiology of the latter form appears to concern the entry of huskworm larvae into the lung tissues of animals that have developed a specific resistance to the worms, the symptoms being the outcome of the response of sensitised tissues to the presence of the specific parasites. The operation of other infective agents is, however, not altogether ruled out and it appears that in some instances they may be responsible for the cough usually associated with "husk".

Soliman, K. N. (1953). **A study of the conditions favouring the survival *in vitro* of the cattle lungworm, *Dictyocaulus viviparus*.**—*J. Helminth.* **27,** 169-180. [Abst. from author's summary.] 2412

For the survival *in vitro* of adult *D. viviparus* the most suitable molecular concentration of sodium chloride lies between 0·8% and 0·85%. The addition of 0·015% calcium chloride prolonged their survival. The addition of 0·01% magnesium chloride to 0·8% NaCl slightly prolonged the survival time and decreased the toxicity of the sodium ion to a slight degree. The addition of 0·015% potassium chloride to 0·8% NaCl slightly prolonged survival and decreased the toxicity of the sodium ion, but in higher concentrations the reverse was the case. Optimal survival (5 days) was obtained in:— 0·80% NaCl + 0·015% $CaCl_2$ + 1·010% $MgCl_2$ + 0·015% KCl, at pH 8·0.

Nevenić, V. & Šibalić, S. (1953). Prilog poznavanju rasprostranjenosti plućnih parazita svinja. [**Incidence of *Metastrongylus elongatus* and *M. pudendotectus* in pigs in Yugoslavia.**]—*Vet. Glasn.* **7,** 179-181. [In Croat. French summary.] 2413

Verminous bronchitis has become widespread in pigs in Serbia. *M. elongatus* occurs more commonly than *M. pudendotectus*; often both are present.—I. Martini.

Nevenić, V. (1952). Paraskariasis konja u ergelama Ljubičevu i Zobnatici i borba protiv ovog oboljenja. [**Control of *Ascaris equorum* on Yugoslav stud farms.**]—*Vet. Glasn.* **6,** 747-753. [In Croat. French summary.] 2414

An account of systematic carbon tetrachloride treatment, with good results, of *A. equorum* infestation in horses on Yugoslav stud farms.—I. Martini.

McGaughey, C. A. (1953). **Actinomycotic-like granulomata of the vertebral column in dogs infected with *Spirocerca lupi*.**—*Ceylon vet. J.* **1,** 34-36. 2415

An account of two cases in dogs in Ceylon of osteomyelitis of dorsal vertebrae causing compression of the spinal cord. In one a short Gram-positive rod may not have been an actinomycete; in the other the organism seen in the lesions resembled a species of *Nocardia*. In

neither case was an organism cultured. In both cases there were large tumour-like enlargements on the wall of the oesophagus caused by *S. lupi* and these lesions were probably the points of entry of the infections.—G. C. AINSWORTH.

VUKOVIĆ, V. (1953). Prilog poznavanju Gongylonemoze goveda. [*Gongylonema* **infestation in cattle in Yugoslavia.**]—*Veterinaria. Sarajevo.* **2**, 350-351. [In Croat. Abst. from English summary.] **2416**

The nematode, *Gongylonema pulchrum*, was found in the mucosa of the oesophagus of 532 out of 538 cattle examined at the Sarajevo abattoir. The greatest number of parasites in any one animal was 68.—R.M.

URQUHART, G. M., JARRETT, W. F. H. & O'SULLIVAN, J. G. (1954). **Canine tracheobronchitis due to infection with** *Filaroides osleri*.—*Vet. Rec.* **66**, 143-144 & 145. [Abst. from authors' summary.] **2417**

The authors described an outbreak of tracheo-bronchitis in dogs, caused by *F. osleri* infestation. They described a transmission experiment.

KUME, S. *et al.* (1952). [**Dichlorphenarsine hydrochloride in treatment of filariasis.**]—*J. Jap. vet. med. Ass.* **5**, 358-361. [In Japanese.] **2418**

Dirofilaria immitis in dogs are destroyed by dichlorphenarsine hydrochloride within 10 days after 3 successive i/v injections of 1 mg. As/kg. (once daily), and within 20 days after 2 injections.—KOGI SAITO.

HAWKING, F., ORMEROD, W. E., THURSTON, J. P. & WEBBER, W. A. F. (1952). **The antifilarial action and toxicity of methylene violet and of other compounds of the phenosafranine series.** — *Brit. J. Pharmacol.* **7**, 494-508. **2419**

The authors made general pharmacological tests of the toxicity of these compounds for certain experimental hosts, and of therapeutic doses for infestation with *Litomosoides carinii*. Methylene violet was ineffective in therapeutic doses against *Wuchereria bancrofti* and *Onchocerca volvulus* in human beings.—A. SEAMAN.

MOIGNOUX, P. J. B. (1952). Les onchocerques des équidés. [*Onchocerca* **infestation in horses.**]—*Acta trop., Basle.* **9**, 125-150. [In French. English and German summaries.] **2420**

M. described the morphology of adult and larval forms of *O. reticulata* and *O. cervicalis* obtained from the suspensory ligament and the ligamentum nuchae, respectively, of horses, and also described the microfilariae found in the intermediate host for both species, *Culicoides nubeculosus*. He suggested that both nematodes were of the same species.—R.M.

DJAENOEDIN, R. & ADIWINATA, R. T. (1953). Stephanofilariosis. IX. *Stephanofilaria* sp. pada kulit kerbau. [**Stephanofilariasis in buffaloes.**]—*Hemera Zoa.* **60**, 203-215. [In Malay. English and German summaries. Abst. from English summary.] **2421**

The authors isolated adult *Stephanofilaria* from a skin lesion of the ventral surface of the neck in 4 buffaloes on the island of Sumbawa, Indonesia. The species isolated differed in some respects from *S. dedoesi* and *S. stilesi*. —R.M.

TAYLOR, E. L. & MICHEL, J. F. (1953). **The parasitological and pathological significance of arrested development in nematodes.**—*J. Helminth.* **27**, 199-205. [Authors' summary slightly modified.] **2422**

A tendency to become dormant during the larval stage, which is so characteristic a feature of the free-living larvae of parasitic nematodes and is an essential requirement in their use of intermediate hosts is a not uncommon occurrence during their life in the final host. Its purpose in each instance is essentially the same, *i.e.*, to carry it through a period in which the environment is unsuited to development on the ground, for instance, where it waits for a suitable host, as a parasite of an intermediate host, where it waits for a suitable final host, or in a resistant final host where inhibited development serves the parasite in enabling it to wait until some depression of the host's state of resistance allows it to grow to maturity.

In some instances these arrested larvae are the cause of pathological conditions in the host.

FRAEDRICH, G. (1953). Bekämpfung von Nematoden-Invasionen bei Tieren mit einem keratinolytischen Ferment (Nematolyt). [**Control of nematode infestation with a keratolytic enzyme.**]—*Berl. Münch. tierärztl. Wschr.* **66**, 392-393. [English summary.] **2423**

F. found by *in vitro* tests and *in vivo* experiments on 70 dogs that the enzyme, " nematolyt " [*V.B.* **22**, **3453**] was an effective anthelmintic against nematode infestation and that it was non-toxic. He gave details of dosage.—W. G. SILLER.

See also abstr. **2460** (recent advances at Weybridge); **2539** (helminthology in the U.S.S.R.); **2584** (report, U.S.A.).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

FORMSTON, C. (1953). **Fibropapillomatosis in cattle with special reference to the external genitalia of the bull.**—*Brit. vet. J.* **109**, 244-248. 2424

F. examined tumours of the glans penis, all fibropapillomata, from 13 bulls; those from 12 were removed surgically and in 3 of these —under 15 months of age—there was fairly rapid recurrence of the growth. He described a technique for surgical removal.—F.E.W.

SALCUNI, P. (1953). Sarcoma mioblastico recidivante dei muscoli di un bovino, ad attitudine tesaurizzante lipidica. **[Rhabdomyosarcoma of the shoulder muscles of a cow.]**—*Riv. Med. vet., Parma.* **5**, 1-8. [English, French and German summaries. 2425

S. described the macroscopic and histological features of a tumour of the left shoulder region of an eight-year-old cow, which had recurred twice after operative removal. He gave reasons for supposing it to be a rhabdomyosarcoma.—E. COTCHIN.

ELDER, C., KINTNER, L. D. & JOHNSON, R. E. (1954). **Bovine mammary gland carcinoma.**—*J. Amer. vet. med. Ass.* **124**, 142-146. [Authors' summary modified.] 2426

A 3-year-old heifer during the terminal part of gestation developed an undifferentiated carcinoma involving principally the small ducts of the udder. The tumour developed rapidly by diffuse permeation of the lymphatic spaces simulating an inflammatory process.

SCHULTE, F. (1953). Trauma und Geschwulstentstehung bei Tieren. **[Trauma in the aetiology of neoplasms in animals.]**—*Dtsch. tierärzil. Wschr.* **60**, 505-509. 2427

S. tabulated a number of cases, chiefly from the literature, but including 4 of his own, in which a tumour was noted to develop at a short or long interval after a traumatic lesion, and discussed ways in which it might act as a cause of neoplasia. [The problem of causal relationship between trauma and neoplasia is still unsolved. Some of the cases here listed would seem to be doubtfully neoplastic in any event, but the author's own cases are very suggestive of a relationship, and the problem needs further critical study.]—E. COTCHIN.

KAAE, S. (1953). **Metastatic frequency of spontaneous mammary carcinoma in mice following biopsy and following local Roentgen irradiation.** — *Cancer Res.* **13**, 744 - 747. [Author's summary slightly modified.] 2428

Local roentgen irradiation of spontaneous mammary carcinomas in DBA mice with doses of 1,000–2,000 r considerably increased the incidence of pulmonary metastases, as compared with a control group (22·2% against 5·4%). This was due only to a small extent to a longer survival of mice in this group, but primarily to a real increase in the metastatic tendency caused by the irradiation. Removal of biopsy specimens did not significantly increase the incidence of metastases.

I & II. STEWART, A. G. & BEGG, R. W. (1953). **Systemic effects of tumors in force-fed rats. II. Effect on the weight of carcass, adrenals, thymus, liver, and spleen. III. Effect on the composition of the carcass and liver and on the plasma lipids.**—*Cancer Res.* **13**, 556-559 & 560-565. [Abst. from authors' summaries.] 2429

I. Force-feeding high fat, carbohydrate and protein diets to rats bearing the Walker 256 carcinoma reduced but did not prevent loss of weight noted in tumour-bearing controls fed *ad lib.* In force-fed rats there was enlargement of the adrenal glands and involution of the thymus, considered to have been caused by the stress of force-feeding.

II. Loss of nitrogen and fatty acids observed in tumour-bearing rats fed *ad lib.* was reduced by force-feeding a similar diet as above. There were excessive variations in the total plasma lipoid content. Nitrogen, total lipoid and phospholipoid content of the liver was similar to that of controls.

JACOTOT, H., LEVADITI, J., VALLÉE, A. & VIRAT, B. (1954). Un cas de généralisation du fibrome infectieux de Shope. **[A case of generalization of infection with Shope's fibroma virus.]**—*Ann. Inst. Pasteur.* **86**, 247-250. 2430

The inoculation of tens of thousands of rabbits in France has recently confirmed in general Shope's statement that fibroma virus does not generalize on inoculation into rabbits.

The authors, however, described one case in which the inoculation of a rabbit intratesticularly led to a normal local response followed a month later by the appearance of 24 secondary tumours in the ears, legs and back. The rabit died and extensive pleurisy, a *Pasteurella* being isolated, was found P.M. Histologically

the tumours were typical of those produced by fibroma virus and transmission experiments from one of the secondary tumours showed that the virus responsible was in fact that of Shope's fibroma. Generalization did not occur in the rabbits inoculated with this material.

—J. Richard Hudson.

Greene, H. S. N. (1953). **Transplantation of the Shope papilloma and the Rous sarcoma during early developmental stages.**—*Cancer Res.* **13,** 726-728. [Author's summary modified.] **2431**

Unlike other tumours studied, the Shope papilloma and the Rous sarcoma are heterotransplantable from their inception. G. discussed the significance of this finding.

Burmester, B. R. (1952). **The propagation of lymphoid tumors in the anterior chamber of the chicken eye.** — *Amer. J. vet. Res.* **13,** 246-251. **2432**

When injected into the anterior chamber of the eye of one-week-old chicks, cell suspenssions of lymphoid tumour strains RPL 12 and RPL 16 induced the growth of tumours in the iris, ciliary body and adnexa, whereas cell-free tumour extracts did not induce typical ocular lymphomatosis. The cell-free extracts produced a transitory greying of the iris, associated with degeneration of its striated muscles, in a variable percentage of birds. This greying also appeared in some eyes injected with normal or with tumour tissue, and was considered to be the result of non-specific reaction to the foreign material injected.—E. Cotchin.

Einert, G. (1952). Über die Hautlymphknoten und deren diagnostischen Wert für die Erkennung der Leukose des Rindes. **[Value of examination of skin lymph nodes for the diagnosis of leucosis in cattle.]** — *Inaug. Diss., Hanover.* pp. 24. **2433**

Following examination of palpable skin lymph nodes in about 1,500 clinically healthy cattle, of which approx. 400 were from herds where outbreaks of leucosis had occured, E. concluded that neither the number nor the size of palpable lymph nodes was of diagnostic value in leucosis. —E.G.

Djaenoedin, R. & Koerjana, R. (1952). Tentang bederapa kedjadian (enkele gevallen) dari penjakit neurolymphomatosis gallinarum. **[Fowl paralysis in Indonesia.]**—*Hemera Zoa.* **59,** 215-218. [In Indonesian. English, French and German summaries.] **2434**

Following the diagnosis of fowl paralysis in Indonesia [*V.B.* **22,** 3136] the authors reported 8 further cases amongst imported fowls.

—C. A. van Dorssen.

Kenzy, S. G. & Neuzil, P. V. (1953). **Studies in avian neoplasia. III. Incidence of Rous virus-neutralizing antibodies in serums collected from flocks experiencing losses due to lymphomatosis.**—*Amer. J. vet. Res.* **14,** 123-128. [Authors' summary modified.] **2435**

Over 60% of the sera from field flocks with 30-50% losses due to fowl lymphomatosis contained Rous-neutralizing antibodies (RNA). Where losses due to fowl lymphomatosis were below 5%, the incidence of RNA was below 10% while no antibodies were demonstrated in sera from some of these populations. The incidence of RNA appeared greatest in birds with the visceral type of lymphomatosis; they were demonstrable in sera from cases of ocular and neural lymphomatosis but not in those of the osteopetrotic type. They were demonstrable in birds that appeared to be free from lymphomatosis, and also in sera from 3 of 5 birds with both connective tissue and lymphoid neoplasms.

The presence of RNA did not appear to influence further loss due to other neoplasms, over the period of a year, in birds taken from a flock with a history of 30% loss due to lymphomatosis.

NUTRITIONAL AND METABOLIC DISORDERS

Joubert, D. M. (1954). **The influence of winter nutritional depressions on the growth, reproduction and production of cattle.**—*J. agric. Sci.* **44,** 5-66. **2436**

Five pairs of heifers of each of four breeds, Friesian, Jersey, Afrikaner and Shorthorn, were started in 1948, and their development on the Transvaal Bankenveld was followed over four years; but during this time 12 animals were lost. One of each pair received supplementary winter feeding, high plane and low plane animals. The latter grew much less during pregnancy and were 9 months later in attaining puberty. The Jersey and Afrikaner breeds throve better than the Friesian and much better than the Shorthorn.

—F. L. M. Dawson.

Johns, A. T. (1953). **Ruminant metabolism.**—*Proc. 13th Ann. Conf. N. Z. Soc. anim. Prod.* **13,** pp. 106-110. Discussion: p. 111. **2437**

Digestion of sugars and starches in rumin-

ants is inefficient, but rumen bacteria " digest " cellulose, and much more acetic and other acids than glucose enter the blood as a result. Possibly oxidation of acetate is the primary energy source, and it is a milk precursor. Some ingested protein is converted to ammonia by the ruminal flora, and excreted as urea, and this wastage is greater when the ration has too high a protein/carbohydrate ratio. On the other hand, protein synthesis by microflora, themselves digested in the abomasum, can markedly improve the biological value of available forage nitrogen, *e.g.* urea is commercially fed to bullocks as a partial protein substitute. J. suggested that spring pasture is often quite wastefully used as its protein content is too high. Silage changes produce a similar but even more marked imbalance in the forage.
—F. L. M. Dawson.

Volcani, R. & Levi, D. (1953). **[Inoculation of calves with rumen bacteria.]**—*Refuah Vet.* **10,** 54-55. [In Hebrew.] English summary p. 88. 2438

The authors repeated experiments described by Pounden & Hibbs [*V.B.* **20,** 474, 475, 3310] on the administration by mouth of rumen contents from adult cows to young calves, and found that their growth rate was greater than that of untreated calves.—R.M.

Robinson, K. L. (1954). **The use of synthetic vitamins and antibiotics in non-ruminant feeding.**—*Proc. Nutr. Soc.* **13,** 27-31. [Author's summary copied *verbatim.*] 2439

The review of pre-war experiments indicates that high levels of production were obtained with pigs and poultry on cheap all-vegetable diets, provided they had access to the open air and received some green food; it would appear that these conditions were necessary, at least in part, to supply factors such as vitamins A and D, riboflavin and vitamin B_{12}, which are now available as inexpensive dry concentrates. Although American experience with suitably vitaminized soya-maize diets suggests that these are capable of giving good production under intensive conditions, it is questionable whether the supplemented all-vegetable diets at present practicable in the U.K. would be sufficiently attractive to secure the necessary degree of food intake under the intensive systems now prevalent. There seem to be reasonable grounds for the suggestion that antibiotics could help to overcome this defect in palatability.

Marek, J., Hegyeli, Z. & Sántha, S. (1952). Wirkung der in getrockneter Bierhefe enthaltenen Vitamine und Enzyme auf den Organismus der Schweine und auf die Qualität und Quantität des vom Schweineblut hergestellten Serums. **[Action of vitamins and enzymes from brewers' yeast on pigs and pigs' serum.]**—*Acta vet. hung.* **2,** 259-270. [In German. Russian summary.] 2440

The feeding of dried brewer's yeast to pigs decreased the incidence of catarrhal pneumonia and increased the antibody titre of the serum in pigs previously immunized against swine fever and swine erysipelas.—N. Dean.

Marthedal, H. E. (1953). **Hepatitis in chickens, presumably of non-contagious character.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. 1067-1072. [In English. French and German summaries.] 2441

M. described a sporadic disease with low mortality in chickens 3–12 weeks old, which occurred during the summer months in Denmark, and was characterized by hepatitis and typhlitis. No bacteria or parasites were identified as the cause, but the disease was reproduced by feeding fowls with the same diet as that of affected fowls. M. concluded that an unidentified nutritional factor was responsible.
—R.M.

Le Bars, H., Nitescu, R. & Simonnet, H. (1953). Recherches sur la motricité du rumen chez les petits ruminants. II. Relation entre la motricité et la glycémie. **[The motility of the rumen and its relationship to glycaemia.]**—*Bull. Acad. vét. Fr.* **26,** 351-360. 2442

The authors recorded data on the relationship between rumen motility and glycaemia, from experiments using sheep with permanent ruminal fistulae. The i/v injection of 0·2–1 g. of glucose per kg. body wt. produces, after 20 min., a decrease of rumen motility which reaches its maximum within one to one and a half hours. This is followed by a period of increased motility, and rumination occurs. The i/v injection of 0·5–2 i.u. of insulin per kg. body wt. produces, after 50 min., an increased rumen motility, and after 80–120 min. rumination occurs. Blood sugar levels were also recorded.—G. V. Laugier.

Behrens, H. (1953). Liquoruntersuchungen bei Pferden mit Leberkoller. **[Examination of cerebrospinal fluid in cirrhosis of the liver in horses.]**—*Prakt. Tierarzt.* No. 8. 153-154 & 156-157. 2443

B. examined the c.s.f. of 2 horses showing signs of apathy, incoordination and dysphagia. One of them had had maniacal attacks. P.M. examination revealed cirrhosis of the liver, the cause of which could not be established. The

c.s.f. was yellow in colour, and the mastic test and the colloidal gold test described by Riebeling (1938) gave readings at variance with those for normal horses. Other properties of the c.s.f. were normal.—R.M.

BEVERIDGE, W. I. B. & JOHNSTONE, I. L. (1953-54). **Sheath-rot, non-contagious posthitis or chronic ulceration of the prepuce of sheep. I. Introduction and clinical observations. II. Experiments on the reproduction of the disease. III. Curative effect of reduced food consumption or surgical measures.**—*Aust. vet. J.* **29,** 269-274 & 329-336; **30,** 1-6. [Abst. from authors' summaries.] 2444

Chronic external ulceration of the prepuce in sheep is mild and unimportant; internal ulceration or " sheath-rot " is a serious disease and tends to extend to the penis. High incidence is often associated with a high-protein diet. Attempts to transmit sheath-rot from one sheep to another by inoculation failed. Affected sheep usually recovered when brought to the laboratory, probably because of enforced and later self-imposed fasting. Fasting had a curative effect and this method of treatment has been successful in the field with both types of the disease.

TACKEN, P. H. W. (1952). Spier-degeneratie bij varkens, een acute psycho-somatische decompositie op basis van een labiel physiologisch-chemisch evenwicht. Een bijdrage tot het onderzoek betreffende de oorzaak van de zogenaamde acute hartdood bij het varken. **[Muscular degeneration in slaughter pigs and the cause of fatal syncope.]**—*Tijdschr. Diergeneesk.* **77,** 487-500. [English, French and German summaries.] 2445

T. described hyaline degeneration in the muscles of the hind legs, loins and back of slaughter pigs, accompanied by enlargement of the adrenal glands and hyperaemia of the adrenal cortex. He suggested that the cause was disturbance in the function of the pituitary gland induced by fright, transport, rough handling etc., before slaughter. The condition appeared to prevail in pigs which had been fed a diet low in protein. It was reproduced experimentally in a pig by the i/m inj. of A.C.T.H. He discussed differentiation from fatal syncope, the cause of which he believed to be also lack of protein in the ration.

—C. A. VAN DORSSEN.

TSCHAIKOWSKY, G. (1951). Über Versuche, den akuten Herztod der Schweine durch eine B_1-Avitaminose zu erzeugen. **[Experimental production of cardiac syncope in thiamine-deficient pigs.]**—*Exp. Vet.-Med.* **3,** pp. 108-113. 2446

Of pigs fed a thiamine free or thiamine deficient diet, one in each of two thiamine deficient groups of three pigs died of total heart block and the others developed nervous symptoms of varying severity.—R. MARSHALL.

PUNTRIANO, G. O. (1953). **New studies on the etiology of urinary calculi in sheep and cattle.**—*Mich. St. Coll. Vet.* **14,** 12-14. 2447

Hyaluronidase resembles the protective urinary colloids in that it prevents urolithiasis in livestock. Nutrition is important in determining the concentration of these colloids. Tables show the relationship between urinary colloids, electrolytes, water supply and the tendency towards urinary calculi.

—D. POYNTER.

HART, P. C. (1954). Onderzoek naar het zinkgehalte van runderlevers. **[Zinc content of the liver of cattle.]**—*Tijdschr. Diergeneesk.* **79,** 91-98. [English, French and German summaries.] 2448

The average zinc content of dried liver of normal cows was 144 μg. per g. That of 31 cows treated with " vevoron " (a preparation containing methylthiouracil) averaged 125 μg. per g. Since the weight of the liver in cattle treated with the latter was greater than that of the untreated cattle, the total amount of zinc in the whole liver did not differ in the two groups.—C. A. VAN DORSSEN.

TOTTER, J. R., BURNETT, W. T., JR., MONROE, R. A., WHITNEY, I. B. & COMAR, C. L. (1953). **Evidence that molybdenum is a nondialyzable component of xanthine oxidase.** — *Science.* **118,** 555. 2449

Following the intravenous injection of labelled sodium molybdate into a dairy cow, xanthine oxidase was isolated from the milk at varying intervals, and evidence was provided to suggest that molybdenum was an integral part of the xanthine oxidase. This finding is considered to provide evidence that molybdenum plays an essential role in animal metabolism.—L. C. VAUGHAN.

WALSH, T., NEENAN, M. & O'MOORE, L. B. (1951-52). **The importance of molybdenum in relation to some cropping and livestock problems under Irish conditions.**—*J. Dept. Agric. Irish Free St.* **48,** 32-43. 2450

The authors reviewed the literature and reported preliminary investigations on the occur-

rence of excess or deficiency of molybdenum in the soil in relation to plant growth and animal health. A syndrome seen in cattle and sometimes in sheep, characterized by unthriftiness, retarded growth, and changes in the colour of the hair, similar to that seen in copper deficiency, was found to be associated with excess Mo in the herbage and normal amounts of Cu. [See also *V.B.* 23, 668 & 2885.]—R.M.

Arrington, L. R. & Davis, G. K. (1952). **Molybdenum toxicity in the rabbit.** — *J. Anim. Sci.* **11,** 756. [Only abst. given. Abst. from abst.] 2451

Molybdenum at 0·1% or more in the diet produced a toxic syndrome in rabbits which responded to copper therapy. There is a suggested connexion with phosphorus metabolism. —W. S. Marshall.

Kulwich, R., Hansard, S. L., Comar, C. L. & Davis, G. K. (1953). **Copper, molybdenum and zinc interrelationships in rats and swine.** —*Proc. Soc. exp. Biol., N.Y.* **84,** 487-491. [Authors' summary and conclusions modified.] 2452

Substantial increases in tissue copper concentrations and radio-copper accumulation resulted when a level of 1000 p.p.m. of molybdenum as sodium molybdate was fed to rats and pigs on a natural ration. This increase was especially pronounced in the kidneys and liver and is in accord with the hypothesis that excess copper, which is not physiologically effective, may be accumulated when a high level of molybdenum is fed. A dietary level of 1000 p.p.m. of zinc did not appear to have any appreciable effect upon copper metabolism. Growth depression in rats produced by 1000 p.p.m. of molybdenum added to a natural or synthetic ration was not counteracted by the addition of 200 p.p.m. dietary copper. Pigs appeared to be more resistant than rats to molybdenum toxicity. No degenerative changes were observed in the spinal cord, leg joints or muscle tissues of pigs fed levels of 1000 p.p.m. of molybdenum or 1000 p.p.m. zinc for a 7-month experimental period. Dietary zinc did not appear to be involved in copper-molybdenum imbalance.

Granick, S. (1954). **Iron metabolism.**—*Bull. N.Y. Acad. Med.* **30,** 81-105. 2453

There has recently been rapid progress in knowledge of this subject and the article is a digest of recent experimental results, 49 references being quoted, mostly of 1948 or later date. $Fe(OH)_3$ occurs in the food and is ionized by the stomach HCl and then reduced to the ferrous state, in which alone it can be absorbed. The intestinal mucosal cells have the power to regulate the rate of entry of iron into the body; iron leaves the body as the result of reproduction or haemorrhage. A protein, transferrin, carries the iron in the blood stream to the tissues, and another, ferritin, has the function of storing the element, mostly in the liver, spleen, and marrow. These reserves become available on sudden heavy loss. Dysfunction of only one of these five mechanisms has been recognized; in haemochromatosis the mucosal cells allow the adsorption of more Fe than they should, and this may result from overfeeding with iron in wrongly-diagnosed anaemias—those not associated with Fe deficiency. It is also believed to ensue from a high Fe/P ratio in the food. The disease is accompanied by cirrhosis of the liver. Endogenous haemochromatosis is best treated by a prolonged series of weekly blood withdrawals.

—F. L. M. Dawson.

Jowsey, J. R., Oliver, W. F., Maw, W. A. & Common, R. H. (1953). **Observations on the mineral metabolism of pullets. X. The effects of gonadal hormones on retention and turnover of calcium by the skeleton.**—*Canad. J. agric. Sci.* **33,** 216-224. 2454

In 3 groups of sexually immature pullets injected i/m on alternate days over an 11-day period with testosterone propionate (TST), oestradiol benzoate (ODB) and a mixture of the two (ODB + TST), calcium retention (Ca in food less Ca in droppings) was measured daily. The dietary calcium was labelled with Ca^{45} on the 11th day, the birds being killed 24 hours later. Measurement of radio-activity in the skeletons in these groups revealed that (1) ODB + TST highly significantly increased retention of calcium whilst TST and ODB alone did not; (2) TST, ODB or ODB + TST highly significantly increased the loss of Ca from the skeleton, therefore increasing the exchange of Ca; and (3) ODB + TST increased the turnover of Ca; TST did so with a low degree of significance.

ODB + TST highly significantly increased net gain of Ca, TST did not increase it, and ODB significantly reduced it (although it appeared to produce a significant increase initially). The authors suggested a tentative hypotesis to explain these findings.—R. Gwatkin.

Jungherr, E., Singsen, E. P. & Matterson, L. D. (1953). **The present status of the encephalomalacia problem in chicks.**—*Proc.*

89th Ann Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th. 1952. pp. 301-310. 2455

The authors described the annual, monthly, age, and breed incidence of encephalomalacia in chicks caused by vitamin E deficiency, in Connecticut during the years 1936-51. They also described the pathology and discussed nutritional factors involved.—R.M.

CASAROSA, L. (1951). Contributo alla conoscenza delle alterazioni patosiche [patologiche] del muscolare striato. Miodegenerazione cerea con infiltrazione calcarea in gruppi muscolari simmetrici del bovino. **[White muscle disease in cattle.]**—*Ann. Fac. Med. vet., Pisa.* **4,** 159-168. [English and French summaries.] 2456

In cattle walked over a long distance before slaughter C. observed waxy degeneration and calcification of the muscles of rump, thigh and shoulder. The microscopic and macroscopic lesions were similar to those encountered in white muscle disease, and C. considered that a deficiency of vitamins B_1 and C might have contributed to the condition.

—I. MARTINI.

KIRILLO, V. S. & TSARENKO, A. (1953). **[The pathogenesis of parturient paresis in cows and its treatment with milk.** — *Veterinariya, Moscow.* **30,** No. 12. pp. 36-39. [In Russian.] 2457

After describing the pathogenesis of parturient paresis, the authors gave an account of successful treatment of 7 cows. A total of 650 ml. of milk from a healthy cow was injected into the udder through all the teats (the quantity depending on the capacity of the udder). No other remedies, such as insufflation, were undertaken.

A cow in calf which refused to rise, got up an hour after having had milk injection and calved normally 20 days later. It is suggested that drugs might be injected by this route.

—F. A. ABBEY.

BERRIER, H. H., JR. (1953). **Pregnancy disease in sheep : a preliminary report on prophylaxis and treatment.**—*Vet. Med.* **48,** 405-409. [Author's summary modified.] 2458

Ketogestin (a cortisone-related hormone) was used in 14 cases of pregnancy disease in sheep because experimentally it has profound effect upon carbohydrate metabolism, accelerating production of blood glucose from amino acids (gluconegenesis), therefore decreasing fat metabolism. Doses ranging from 500 mg. to 1 g. appeared to be effective therapeutically, depending upon the severity and stage of the disease.

BENIAMINO, F. (1952). L'utilizzazione degli iodo-protidi in campo zootecnico. Ricerche sull'azione galattopoietica della caseina iodata in pecore entrate in lattazione mediante trattamenti ormonici. **[The action of iodinated casein on sheep in hormone-induced lactation.]**—*Riv. Med. vet.* **4,** 143-156. [English and French summaries. Abst. from summaries.] 2459

Sheep in which lactation had been induced by hormone treatment gave a greater yield of milk of the same quality when subsequently treated with iodinated casein. Treated animals tend to exhibit increased respiratory rate and a higher pulse rate. B. gave a brief review of the literature concerning iodinated proteins.

—A.S.

See also absts. **2222** (*Listeria* infection in g. pigs from aureomycin feeding); **2460** (recent advances at Weybridge); **2585** (book, nutritional physiology).

DISEASES, GENERAL

STABLEFORTH, A. W. (1953). **Recent advances at Weybridge.**—*Vet. Rec.* **65,** 709-715. Discussion pp. 715-722. 2460

S. described recent work carried out at Weybridge on the following:—TB., Johne's disease, swine erysipelas, *Salmonella pullorum, Brucella abortus, Vibrio fetus* infection, swine fever, Newcastle disease, Q fever, *Hypoderma bovis,* fascioliasis, parasitic bronchitis in ruminants and parasitic gastritis in sheep, strongylosis, hypomagnesaemia, hypocuprosis and poisoning by rodenticides.

There was a general discussion at the meeting.—R.M.

OTTEN, E., WESTPHAL, A. & HENZE, S. (1952). Toxoplasmose, Staupe, Leptospirose. Serologische Untersuchungen über getrenntes und gemeinsames Vorkommen beim Hunde. **[Serological examination in toxoplasmosis, distemper and leptospirosis in dogs.]**—*Tierärztl. Umsch.* **7,** 153-157. 2461

Of 58 serum samples from dogs with antibodies to toxoplasmosis, 20 gave a positive c.f.

reaction to *Leptospira ictohaemorrhagiae, L. canicola* and *L. grippo-typhosa*. Of another 24 cases with nervous symptoms, the sera of which had antibodies to toxoplasmosis, 8 also gave a positive reaction to the c.f. test for distemper.
—M. L. Clarke.

Bendixen, H. C. (1952). Prophylaxie des maladies infectieuses au point de vue des recherches sur l'hérédité et la constitution. **[Heredity and the control of infectious diseases.]**—*Bull. Off. int. Épiz.* **38,** May. pp. 480-509. [English summary.] 2462

B. compared methods of disease control in plants by genetic management, with disease control in animals. He discussed the economic difficulties arising out of breeding for resistance, with references to F. & M. disease, swine fever, mouse salmonellosis, the fowl leucosis complex and mammary carcinoma of the mouse.
—G. V. Laugier.

Ram, T. (1953). **Geographical distribution and seasonal incidence of main contagious diseases among bovines in the Punjab from 1944-45 to 1949-50.**—*Indian J. vet. Sci.* **22,** 135-142. 2463

During the six-year period, the seasons of highest incidence of outbreaks in the Punjab (India) were winter for rinderpest, summer for F. & M. disease, and the summer rainy season for haemorrhagic septicaemia. Outbreaks of blackleg showed only a slight increase in the rainy season.—R. N. Mohan.

Petrović, D. (1952). **[Aetiology and incidence of equine periodic ophthalmia in Yugoslavia.]**—*Vet. Glasn.* **6,** 714-716. [In Serbian. German summary.] 2464

A note on equine periodic ophthalmia in a stud. The incidence was about 0·4%. The stud was moved to another locality which was marshy and on a clay soil and the horses were moved seasonally in the late summer to dry upland pastures. It is stated that in the spring when on the marshy pastures the incidence of the disease was 18% and that cases did not occur when on the upland pastures in the late part of the year.—F.A.A.

Williams, A. W. (1953). **Exophthalmos in cortisone-treated experimental animals.**—*Brit. J. exp. Path.* **34,** 621-624. [Author's summary modified.] 2465

An account of experiments in which exophthalmos developed in young adult g. pigs, rabbits and rats following the daily injection of cortisone acetate, and of another experiment in which exophthalmos was produced in mature adult g. pigs by thyroidectomy. Cortisone failed to increase the latter type of exophthalmos. Desiccated thyroid gland decreased it.

Detweiler, D. K. (1953). **Experimental and clinical observations on auricular fibrillation in horses.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp.119-129. Discussion: pp. 129-130. 2466

D. reviewed the literature and described 5 cases of auricular fibrillation in horses. In 2 cases fibrillation permanently ceased following the oral administration of quinidine sulphate, 10 g. hourly for 9 hours.—R.M.

Schofield, F. W. & Schroder, J. D. (1954). **Some important aspects of edema disease in swine (entero-toxemia).**—*Canad. J. comp. Med.* **18,** 24-28. 2467

From a review of the literature and from their own work the authors suggested that oedema disease of pigs is related to a bacterial entero-toxaemia rather than to ingestion of preformed toxin. For the complex disease, they suggested that the term entero-toxaemia of swine be used.—P. J. G. Plummer.

Renk, W. (1952). Zur Pathogenese und Ätiologie des enzootischen Herzschlages der Schweine. **[Fatal syncope of pigs.]**—*Mh. prakt. Tierheilk.* **4,** 49-66. 2468

A general discussion.—H. Behrens.

Meder, F. (1952). Behandlung von Ferkel-Durchfällen mit Ventrigal. **[Treatment of diarrhoea in piglets with ventrigal (an oestrogen preparation).]**—*Wien. tierärztl. Mschr.* **39,** 499-502. 2469

M. described the treatment of diarrhoea of undetermined cause in piglets, using "ventrigal" (a commercial oestrogen preparation). Of 241 piglets given "ventrigal" *per os* and injected i/m with horse serum (*Pasteurella septica—Salmonella typhi* anti-serum), 29 died. Of 40 others given only serum 18 died.
—A. Mayr-Harting.

Coffin, D. L. & Munson, T. O. (1953). **Endocrine diseases of the dog associated with hair loss. Sertoli cell tumor of testis, hypothyroidism, canine Cushing's syndrome.**—*J. Amer. vet. med. Ass.* **123,** 402-408. 2470

A clinical description of three endocrine diseases of the dog:—Sertoli cell tumour of the testis, hypothyroidism, and Cushing's syndrome. The authors laid emphasis on the value, as an aid to the clin. diagnosis of these diseases, of hair loss and the appearance of the coat.
—D. S. Papworth.

ERICHSEN, S. (1952). Et tilfelle av kronisk eosinophil tyggemuskelbetennelse hos hund. **[Chronic eosinophilic myositis of the masticatory muscles in a dog.]**—*Nord. VetMed.* **4,** 139-144. [In Norwegian. English and German summaries.] **2471**

A short clinical description of chronic eosinophilic myositis of the masticatory muscles in a dog, two and a half years old. P.M. examination revealed advanced lesions, including an extensive increase in the connective tissue, focal infiltrations of lymphocytes, plasma cells and histiocytes, and fully developed polynuclear cells with eosinophilic granules, in the masseteric, temporal and pterygoid muscles. Nuclear changes were not present, but the muscle fibres were greatly reduced in size. E. suggested that the lesions may have been related to disease of the mandibular nerve.

—R. B. HOLCOMBE.

WILBUR, O. M., JR. & RICH, A. R. (1953). **A study of the rôle of adrenocorticotropic hormone (ACTH) in the pathogenesis of tubular degeneration of the adrenals.**—*Johns Hopk. Hosp. Bull.* **93,** 321-347. [Authors' summary modified.] **2472**

Tubular degeneration of the adrenal cortex, which occurs not infrequently in severe acute infections and probably plays an important role in the pathogenesis of some of the instances of circulatory collapse that occur in severe infection in human beings, can be produced experimentally in the rat by excessive stimulation of the cortex resulting from the administration of large doses of sterile A.C.T.H. The experiments demonstrated that neither the state of infection nor a direct action of bacterial toxic products upon the adrenal glands is necessary for the development of the lesion.

The amount of exogenous A.C.T.H. required to produce the lesion in normal animals under the conditions of these experiments was very large, but the authors gave reasons to support the view that, under the conditions of fulminant infection, the pituitary gland may produce an amount of adrenocorticotropic hormone sufficient to cause the lesion. They discussed other effects of A.C.T.H. upon the adrenal cortical cells in these experiments.

POISONS AND POISONING

GOTINK, W. M. & VAN ULSEN, F. W. (1952). Massale wildsterfte door vergiftiging met zinkphosphide. (Muizentarwe.) **[Poisoning of game with zinc phosphide rat poison.]**—*Tijdschr. Diergeneesk.* **77,** 214-219. [English and German summaries.] **2473**

Five hundred of a population of some 7,000 wild geese, and a number of ducks, partridges and hares were found dead in an area where zinc phosphide rat poison had been strewn during a dry period. In the animal stomach the phosphide is converted into phosphine, which can sometimes be detected by its smell or chemically, after oxidation, as phosphoric acid.

—A. J. ULTÉE, JR.

MORAN, T., PACE, J. & MCDERMOTT, E. E. (1953). **Interaction of chlorine dioxide with flour: certain chemical aspects.**—*Nature, Lond.* **171,** 103-106. **2474**

Modification of amino acids and oxidation of unsaturated acids was observed when flour was exposed to the action of pure chlorine dioxide or a mixture of chlorine dioxide with 30% chlorine, but was considered to be negligible for practical purposes. Some reduction in tocopherol content might require to be made up by other dietary constituents.—R. MARSHALL.

CLARK, S. T. (1954). **A case of warfarin poisoning in young pigs.**—*Vet. Rec.* **66,** 78-80. [Author's summary modified.] **2475**

An account of warfarin poisoning in which 5 piglets from a litter of 11 died following ingestion of baited pig meal. Three male piglets died following castration as a result of severe haemorrhage from the spermatic vessels, while two female piglets died as a result of extensive subcutaneous haemorrhages associated with bruising. These findings re-emphasize the need for great care in the use of this rodenticide on premises where domestic animals may gain access to it.

STEINIGER, F. (1953). Über die Gefährdung von Schweinen durch Rattengifte vom Cumarintyp. **[Toxicity for swine of coumarin compounds used as rat poison.]**—*Dtsch. tierärztl. Wschr.* **60,** 245-251. **2476**

"Actosin," a rat poison containing 0·75% of warfarin (a coumarin derivative), produced no significant lowering of the prothrombin time in two pigs either after consumption of 5 g. per 32 kg. body wt. daily for 5 consecutive days, or after eating, in the course of 6 days, 32 rats freshly killed with the poison. A single dose of 50 g. per 42 kg. body wt. lowered the prothrombin time only moderately in another pig. S. discussed the relative safety to domestic livestock of dusting powder as compared with poisoned bait.—G. P. MARSHALL.

Radeleff, R. D. (1954). **TEPP (Tetraethyl pyrophosphate) poisoning of cattle.**—*Vet. Med.* **49**, 15-16. 2477

Twenty-nine cattle of various ages, sprayed with 0·33% TEPP, an insecticide intended for other than animal treatment, developed dyspnoea, salivation, trembling, ataxia and paralysis terminating in death in 2–5 min. R. pointed out the dangers of this substance in the absence of adequate instructions concerning its use.—C. A. E. Briggs.

Zeeman, S., Hirsch, S. & Bellet, S. (1954). **The effect of potassium depletion induced by desoxycorticosterone acetate on the lethal dose of lanatoside C in dogs : relationships of plasma levels, skeletal and cardiac muscle potassium content to the lethal dose.**—*Amer. J. med. Sci.* **227**, 65-73. [Authors' summary modified.] 2478

The lethal dose of a standard solution of lanatoside C (glycoside from the leaves of *Digitalis lanata*) administered at a constant rate was determined in 3 groups of dogs under light anaesthesia as follows:—Group I: 9 normal control dogs; Group II: 10 dogs given daily injections of DOCA and drinking water containing sodium chloride in order to produce potassium depletion; Group III: 5 dogs given daily injections of DOCA with potassium chloride added to their drinking water in order to prevent the potassium depleting effect of the DOCA. An additional 4 normal dogs under light anaesthesia were killed by air injection to serve as controls for the determination of the effect of lanatoside C on the potassium content of the heart and skeletal muscle. Control sodium and potassium values for plasma and skeletal muscle were obtained in all animals. Similar determinations were obtained after the administration of DOCA in Groups II and III. Sodium and potassium values for skeletal and cardiac muscle were obtained after death in the animals of all three groups.

The potassium-depleted dogs showed an increased sensitivity to lanatoside C when compared with the control animals as manifested by a lowered mean lethal dose.

In the potassium-depleted animal the lethal dose of lanatoside C was found to be well correlated with the potassium level in the skeletal muscle, but not with that of the serum. Because the plasma potassium represents such a small part of the total body potassium, significant changes in intracellular and total body potassium levels may not be reflected by the plasma potassium concentration.

Skeletal muscle potassium increased after lethal doses of lanatoside C in potassium-depleted dogs, but not in the control animals. However, no significant change in the potassium content of cardiac muscle was noted after lethal doses of lanatoside C. This is contrary to the findings of others who noted decreases in cardiac muscle potassium after toxic or fatal doses of digitalis preparations.

Dougherty, R. W. & Cello, R. M. (1953). **Studies of the toxic factors in rumen ingesta of cows and sheep. II.** — *Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 130-138. 2479

Previously [*V.B.* **21**, 2111] the authors isolated a toxic factor from the rumen contents of clinical cases of ruminal atony. In the present experiments, acute atony of the rumen was artificially produced in sheep by introducing grain and water into the rumen through a fistula. These sheep died within 24 hours of the forced feeding. Fluid from the rumen, or serum, from the moribund sheep was more toxic to dogs when injected i/v than that taken from sheep before overfeeding.

Two sheep in which the rumen contents were prevented from reaching the intestine by means of fistulae, developed toxic symptoms after overfeeding, but did not die. The authors concluded that the toxic factor was partly absorbed by the rumen wall.—R.M.

Ursiny, J. & Krchňavý, A. (1952). Hromadná otrava kolchicínom u hovädzieho dobytka. **[Autumn crocus (*Colchicum autumnale*) poisoning in cattle.]**—*Spisy Vysoké Školy Vet. Brno.* **21**, No. 195. pp. 1-10. [Russian summary.] 2480

An account of the clinical picture of autumn crocus poisoning in a herd of 98 young cattle. More than 50% of the animals were affected. [No details were given as to their exact number.] Symptoms appeared on the third day after the animals had been put out on pasture in which large numbers of autumn crocus were growing. One died and five had to be slaughtered. The remainder recovered within a week after symptomatic treatment.—E.G.

Avelange, R. & Henry, R. (1953). Sur un cas d'intoxication collective, chez le cheval, à la suite d'un traitement vermifuge à base de phénothiazine. **[Phenothiazine poisoning in horses.]**—*Rev. Méd. vét.* **104**, 461-464. 2481

An account of phenothiazine poisoning in 15 horses in poor condition, with one death, probably the result of collective instead of individual dosage of animals of different ages and sizes.—G. P. Marshall.

Begović, S., Mahić, H. & Sabjan, I. (1953). Utjecaj ljekovitih doza crvomora na protrombinsku reakciju i reakciju taloženja eritrocita kod konja. **[Effect of " crvomor " (a carbon tetrachloride preparation) on prothrombin reaction and sedimentation rate in horses.]**—*Veterinaria, Sarajevo.* **2,** 340-349. [In Croat. Abst. from English summary.] 2482

The authors estimated the prothrombin time and the r.b.c. sedimentation rate of the blood of 20 horses, before and after the daily oral administration for 14 days of therapeutic doses of " crvomor ", a preparation composed of 75% carbon tetrachloride and 25% mineral oil. On the third day of administration the sedimentation rate had decreased by an average of 9 mm. and the prothrombin time had increased by 12%. Marked reduction of the sedimentation rate was observed in 2 other horses, to which toxic doses of CCl_4 were administered by i/v injection.—R.M.

Endrejat, E. (1953). Über gehäufte Todesfälle unter Schafen nach Behandlung mit gechlorten Kohlenwasserstoffen. **[Losses among sheep after treatment with chlorinated hydrocarbons.]**—*Tierärztl. Umsch.* **8,** 130-132. 2483

Of a flock of 200 sheep infested with liver fluke and treated with hexachlorethane, 40 died and many were seriously ill for a long period. Of another flock of 250 treated with tetrachlorethane, 30 died and many others were very ill.

—A.S.

Cullumbine, H. (1954). **The physiological and biochemical disturbances produced by war gases.**—*Brit. med. Bull.* **10,** 18-21. 2484

The study of war gases is merely a specialized branch of toxicology. C. discussed the ways in which the gases produce their effects under the clinical classification: vesicants, lung irritants and lethal gases—C. A. E. Briggs.

See also absts. **2460** (recent advances at Weybridge); **2584** (report, U.S.A.); **2586** (handbook of treatment of acute poisoning).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

Weidmann, H. & Petersen, P. V. (1953). **A new group of potent sedatives.**—*J. Pharmacol.* **108,** 201-216. [Authors' summary modified.] 2485

The authors studied 37 compounds, the majority of which were closely related to the antihistamine diphenhydramine (benadryl) for sedative, convulsant, spasmolytic, and toxic properties in mice, and attempted to correlate structure with pharmacological activity. Qualitatively, as far as the present investigations are concerned, these compounds resembled benadryl in pharmacological action. Quantitatively with regard to sedation, some of these preparations, especially the higher alkylated alkylmercaptobenzohydryl ethers and thioethers were found to be 2–4 times as potent as phenergan (promethazine hydrochloride), the median sedative dose of which for mice was determined as 23·4 mg./kg. intraperitoneally.

Elwell, L. H. & Dean, J. W. (1953). **Intestinal blood flow in curarization.**—*Amer. J. Physiol.* **174,** 185-190. 2486

When *d*-tubocurarine was injected intra-arterially into segments of innervated and of denervated dog intestine, the flow of blood through the segments increased, demonstrating the significant contribution of the splanchnic musculature to the generalized circulatory response to curarization.—L. C. Vaughan.

Müller, L. F. (1954). Röntgenuntersuchungen zur Pharmakologie der Vormagenbewegungen. **[Examination by X-rays of the effect of certain drugs on stomach movement in ruminants.]**—*Berl. Münch. tierärztl. Wschr.* **67,** 33-34. [English summary.] 2487

More than half the paper reviewed previous work and the pros and cons of various techniques. M. made 148 drug trials. Arecolin and lentin in the larger doses arrested the contractions after increasing their intensity. The effect of barium chloride was irregular. Veratrine tincture consistently brought all movement to a stop, and hydrochloric acid had no effect.

—F. L. M. Dawson.

Kanegis, L. A, Kelly, R. G. & Cunningham, R. W. (1954). **Observations on the absorption and excretion of sulfisoxazole, sulfadimetine and sulfamethazine in cattle.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 69-81. [Authors' summary and conclusions modified.] 2488

Sulfisoxazole [sulphafurazole] and sulfadimetine [sulphasomidine] produced low concentrations in the blood of cows following oral dosage, and rapidly declining levels following i/v injection, being rapidly excreted in the urine. For the treatment of systemic infections, high dosage, repeated at relatively frequent intervals—every 4 to 6 hours i/v or every 8 to

12 hours orally—would appear to be required to produce therapeutic concentrations in the blood. Of the sulphonamides studied only sulphamethazine produced and maintained high concentrations in the blood that persisted for at least 24 hours following a single dose given i/v or orally.

COLLIER, W. A., TJONG, T. & HUNG, A. (1952). Investigaciones sobre la acción antibiótica en hojas de plantas de Surinam. **[Antibiotic action of green plant extracts in Surinam.]**—*Rev. Med. vet., Caracas.* **11,** Nos. 3 & 4. pp. 11-30. [German summary.] 2489

Extracts from the leaves of 492 indigenous and exotic plants in Surinam, 5 fruits, 4 flowers and one mould (from leaves of *Hydnocarpus* sp.) were tested for antibiotic action against penicillin-sensitive staphylococci and *Bact. coli;* 100 had antibiotic action against staphylococci, and of these 12 were active up to a dilution of 1:80, 24 up to 1:40, 18 up to 1:20, the remaining 46 having a weak or very weak activity. Only 12 were active against *Bact. coli.* The plants tested were listed alphabetically under family and species.—F.E.W.

LIENERT, E. & HINTEREGGER, G. (1953). Blutserumspiegelbestimmung beim Hund nach Penicillin-Implantation. **[Penicillin blood level in dogs after implantation of penicillin pellets.]**—*Wien. tierärztl. Mschr.* **40,** 716-724. [English, French and Italian summaries.] 2490

The authors examined penicillin blood levels and persistence of the drug in healthy dogs implanted with pellets prepared either from penicillin alone or from penicillin in vehicles of stearic acid, cholesterol, charcoal or sodium salicylate. Of these cholesterol was the most favourable in respect of height of level and prolonged action.

Collodion-coated pellets produced a somewhat lower penicillin blood level, but persistence of the antibiotic in the blood was prolonged as compared with uncoated pellets. Generally, penicillin pellets were stated to be superior to aqueous suspensions in respect of level and to aqueous procain-penicillin in respect of depot action.—E.G.

SAMBERG, Y., BORNSTEIN, S. & RAUTENSTEIN-ARAZI, A. (1953). **[Blood serum levels of penicillin in chickens.]**—*Refuah Vet.* **10,** 37-50. [In Hebrew. Abst. from English summary. p. 94.] 2491

The s/c or i/m injection of from 1,000 to 50,000 units of crystalline penicillin (benzylpenicillin) per adult Leghorn fowl, irrespective of body weight, resulted in demonstrable levels of the drug in the serum (*i.e.,* 0·03 units per ml.), for from 15 min. to 6 hours respectively, The duration of serum levels obtained by the injection of procaine penicillin in aqueous suspension was not significantly greater than that of crystalline penicillin, but 50,000 units of procaine penicillin in oil with 2% aluminium stearate maintained effective serum levels (1 unit per ml. serum) for 48 hours.—R.M.

REYNOLDS, B. & ROWLEY, D. (1953). **Synergism between streptomycin and penicillin.**—*Brit. J. exp. Path.* **34,** 651-655. [Authors' summary modified.] 2492

One of the hypotheses that have been put forward to account for antibiotic synergism is that one antibiotic may potentiate the action of another by increasing its effective concentration at the site of action. In the case of the synergistic pair, penicillin and streptomycin, the authors showed that streptomycin does not increase the concentration of penicillin on the bacteria.

WAKSMAN, S. A. (1952). **The literature on streptomycin 1944-1952.** pp. xii + 553. New Brunswick, N.J.: Rutgers University Press. 2nd Edit. $5.00. 2493

This second edition contains a list of more than 5,500 papers on the uses of streptomycin in the treatment of various infectious diseases of man and animals. A small number of articles dealing with animal feeding and the preservation of semen and viruses is included.

The list is arranged chronologically and is followed by author and subject indexes.

—E. V. L.

RICHES, H. R. C. (1954). **Streptomycin reactions. Relation to exercise.**—*Lancet.* **266,** 540-541. [Author's summary modified.] 2494

Of 91 human patients treated i/m with streptomycin 31 complained of toxic symptoms within a few hours of the injection. These reactions occurred less commonly when patients were resting. The level of streptomycin in the blood during exercise is generally higher than that found during rest. A period of rest following the administration of streptomycin may be of benefit to those patients who experience such reactions.

CALESNICK, B., HARRIS, W. D. & JONES, R. S. (1954). **Antithyroid action of antibiotics.**—*Science.* **119,** 128-129. 2495

The authors fed rations containing aureomycin, benzylpenicillin, iodothiouracil, or propylthiouracil respectively to groups of 4 rats

for 42 days. On the 40th day 20 micro-curies I^{131} were injected i/v into each rat. The animals were killed on the 42nd day and the weight and I^{131} content of the thyroid glands was measured. Rats fed antibiotics had lower thyroid gland weights and higher uptake of I^{131} than rats fed thiouracil compounds, but higher gland weights and lower uptake of I^{131} than the controls. The authors concluded that aureomycin and benzylpenicillin inhibit thyroid activity.—R.M.

FLIPPIN, H. F. & EISENBERG, G. M. (1954). **Observations on a selected antibiotic combination.**—*Amer. J. med. Sci.* **227**, 117-127. 2496

A combination of chlortetracycline (aureomycin), oxytetracycline (terramycin), and chloramphenicol exhibits antibacterial properties *in vitro*, which are not manifested when the antibiotics are tested singly in equal concentrations against the same organisms. This combination is superior to penicillin in the treatment of *Klebsiella* pneumonia in man, and may be useful in refractory urinary-tract infections and typhoid fever. The clinical employment of antibiotic combinations is justified where laboratory tests do not demonstrate definite antagonism.—W. R. BETT.

BOWIE, J. H. (1954). **The clinical laboratory aspect of antibiotic therapy.**—*Edinb. med. J.* **61**, No. 1. pp. 1-16 of Transactions. 2497

In general practice antibiotics are still administered without recourse to the clinical laboratory. In most infections in Great Britain, *in vitro* tests are necessary and useful. B. presented an analysis of the bacteriological findings in 400 high vaginal swabs from human cases of puerperal pyrexia, and described in detail the Edinburgh standard disc diffusion technique, as applied to streptomycin, chloramphenicol, aureomycin, terramycin therapy. He discussed inconsistencies between laboratory reports and clinical findings, and the interpretation of sensitivity reports.—W. R. BETT.

ANON. (1954). **Preparations of deoxycortone.**—*Lancet.* **266**, 36. 2498

A note regarding the use in human therapeutics of the following preparations of deoxycortone: the acetate in oil, in propylene glycol, or in pellet form; the glucoside, the trimethylacetate and the phenylacetate of deoxycortone. —R.M.

HARTHOORN, A. M. & BRASS, W. (1954). **Some practical aspects of epidural anaesthesia in the dog.**—*Vet. Rec.* **66**, 117-120. 2499

A discussion on the clinical application of epidural anaesthesia in the dog.

MOWLEM, R. & DAWSON, R. L. (1954). **Management of burns. I. The recent burn.**—*Lancet.* **266**, 39-41. 2500

BARCLAY, T. L. & WALLACE, A. B. (1954). **Management of burns. II. Fluid replacement in burned patients.**—*Ibid.* 98-100. 2501

I. A description of technique and routine for dressing and nursing recent burns in human beings.

II. The authors described methods of assessing the type and quantity of fluid required in a case of burning and the route of administration. The result of fluid replacement therapy was determined by measuring the renal excretion of urine.—R.M.

POTH, E. J. (1953). **Intestinal antisepsis in surgery.**—*J. Amer. med. Ass.* **153**, 1516-1521 [Author's summary modified.] 2502

Intestinal antisepsis as part of routine preparation of the bowel in human patients that are to undergo extensive surgical operation is worth while. Neomycin and phthalylsulphathiazole given simultaneously are the best intestinal antiseptics now available. The authors suggested that as a precaution against the possible development of bacterial resistance to neomycin, the use of this antibiotic should be restricted to intestinal antisepsis in human medicine.

See also absts. **2164** (staphylococci and antibiotics); **2173** (penicillin, given i/m., against mastitis); **2176** (antibiotics in mammary infections); **2184** (terramycin treatment of anthrax); **2199-2200** (TB.); **2224** (bacitracin); **2232** (chloramphenicol); **2236** (terramycin in calf salmonellosis); **2246** (salmonellosis); **2254** (antibrucellin); **2259** (antibiotics in brucellosis); **2267** (sulphonamides); **2307** (sulphaquinoxaline); **2308** (coccidiosis); **2312** (chloroquine sulphate); **2353** (chloramphenicol in calf scours); **2382** (virus diseases); **2390-2391, 2394, 2396, 2399, 2404, 2406, 2418, 2419** and **2423** (insecticides, parasiticides, anthelmintics); **2469** (oestrogen treatment of piglet diarrhoea); **2481** (phenothiazine poisoning); **2536** (benzene hexachloride).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

WYLER, R. (1952). Über die Pigmentierung der Rinderlymphknoten. [**Pigmentation of lymph nodes in cattle.**]—*Acta anat.* **14**, 365-382. [English and French summaries.] 2503

W. described the occurrence of brown or black pigmentation of the mesenteric, mediastinal, and supramammary lymph nodes of cattle. It was not seen in the lymph nodes of calves, and the incidence increased with increasing age. The pigment took the form of small granules, 1–2μ in diam., which possessed the same staining properties as lipofuscin.—R.M.

Webb, R. C., Jr. & Starzl, T. E. (1953). **The effect of blood vessel pulsations on lymph pressure in large lymphatics.**—*Johns Hopk. Hosp. Bull.* **93,** 401-407. [Authors' summary modified.] 2504

A study was made in dogs of rhythmic intralymphatic pressure changes in the supradiaphragmatic and cervical thoracic duct. In both areas lymphatic pulses were found to be transmitted from contiguous large arteries, the lymphatic pulse pressure representing a significant fraction of the peak lymphatic pressure. In the neck venous pulsations were also shown to be transmitted to the lymph in a similar manner. These pulsations were shown to be propagated for only a few millimetres. By " tagging " the lymph it could be demonstrated that the pulsations were associated with its proximal flow. The authors re-emphasized the possible functional significance of such a mechanism in general lymph clearance.

Fankhauser, R. (1953). Der Liquor cerebrospinalis in der Veterinärmedizin. **[The cerebrospinal fluid of animals.]**—*Zbl. VetMed.* **1,** 136-159. [English, French and Spanish summaries. Abst. from English summary.] 2505

A discussion of present knowledge of the c.s.f. in domestic animals and in rabbits and apes, with a description of the technique for its collection.—R. B. Holcombe.

Donker, J. D., Koshi, J. H. & Petersen, W. E. (1954). **The effect of exogenous oxytocin in blocking the normal relationship between endogenous oxytocic substance and the milk ejection phenomenon.** — *Science.* **119,** 67-68. 2506

A cow was given 20 i.u. of oxytocin each hour for 156 hours and milked at hourly intervals and was then put back into 12-hour routine milking; it then failed to respond in its usual way to the normal let-down stimuli.

—W. S. Marshall.

I. El Ridi, M. S., El Ayyadi, M. & Azouz, M. W. (1950). Über das Vorkommen eines die Laktation fördernden Stoffes im Foenum-Graecum Öl (Trigonella Foenum Graecum). **[A lactation stimulating substance in oil of fenugreek.]** — *Hoppe-Seyl. Z.* **286,** 260-263. 2507

II. El Ridi, M. S., Azouz, W. M. & El Hay, A. (1950). Versuche zur Isolierung des die Laktation fördernden Stoffes in Foenum-Graecum-Öl (Trigonella Foenum Graecum). **[Isolation of a lactation-stimulating substance from oil pressed from the seeds of fenugreek.]** —*Ibid.* 256-259. 2508

I. The unsaponifiable fraction of oil of fenugreek, which contains a lactation-stimulating factor, was fractionated with acetone, ethyl alcohol and methyl alcohol, the remainder being further fractionated by paper chromatography; it contained a concentrate which actively stimulated lactation. The authors failed to crystallize this substance. Similar fractionation of yeast oil also yielded a concentrate which stimulated lactation.

II. Female rats were fed a basic purified diet on which they became pregnant and bore young but were unable to suckle them. They were divided into 4 groups, fed respectively supplements of fenugreek oil concentrate, phenol-free fenugreek oil conc., and a corresponding yeast oil conc., the fourth group receiving the basal diet only, as negative controls. Rats in each of the supplemented groups were able to suckle and rear their young. The lactation factor involved is not a phenol body.—F.E.W.

I. Reeve, E. B., Gregersen, M. I., Allen, T. H., Sear, H. (1953). **Distribution of cells and plasma in the normal and splenectomized dog and its influence on blood volume estimates with P^{32} and T-1824.**—*Amer. J. Physiol.* **175,** 195-203. 2509

II. Reeve, E. B., Gregersen, M. I., Allen, T. H., Sear, H. & Walcott, W. W. (1953). **Effects of alteration in blood volume and venous hematocrit in splenectomized dogs on estimates of total blood volume with P^{32} and T-1824.**—*Ibid.* 204-210. 2510

III. Reeve, E. B., Gregersen, M. I., Allen, T. H., Sear, H. & Walcott, W. W. (1953). **Validity of cell and blood volume measurements in the bled splenectomized dog.**—*Ibid.* 211-217. 2511

IV. Allen, T. H. & Reeve, E. B. (1953). **Distribution of ' extra plasma ' in the blood of some tissues in the dog as measured with P^{32} and T-1824.**—*Ibid.* 218-223. 2512

V. Nickerson, J. L., Sear, H. & Reeve, E. B. (1953). **Simultaneous measurements of cell volume with Fe^{55} and P^{32} in splenectomized dogs.**—*Ibid.* 230-232. 2513

VI. Root, W. S., Allen, T. H. & Gregersen, M. I. (1953). **Simultaneous determinations in splenectomized dogs of cell volume with CO and P^{32} and plasma volume with T-1824.**—*Ibid.* 233-235. 2514

VII. Allen, T. H., Pallavicini, C. & Gregersen, M. I. (1953). **Simultaneous measurement of plasma volume with hemoglobin and with T-1824.**—*Ibid.* 236-239. 2515

VIII. Sear, H., Allen, T. H. & Gregersen, M. I. (1953). **Simultaneous measurement in**

dogs of plasma volume with I^{131} human albumin and T-1824 with comparisons of their long term disappearance from the plasma.—*Ibid.* 240-242. **2516**

I. The authors estimated the volume of red and white blood corpuscles by employing blood cells labelled with the radio-active isotope P^{32}, and the plasma volume by a dye method employing Evans blue dye (T-1824). Total blood volume was obtained by adding the blood cell volume to the plasma volume. The authors employed two distribution ratios: F_{cells} was the percentage volume in whole blood/the percentage of cell volume in venous blood; F_{plasma} was the percentage of plasma volume in whole blood/the percentage of plasma volume in venous blood. They described changes in these ratios in dogs as a result of splenectomy, the injection of adrenaline and anaesthesia. The degree of filling of the spleen greatly influenced estimates of blood volume; constant results could be obtained only in splenectomized dogs.

II. The ratio F_{cells} remained constant in splenectomized dogs before and after changes in blood volume caused by bleeding and infusion of dextran. The ratio F_{plasma} varied.

III. The estimated blood volume determined by the methods described in I. corresponded closely to the measured blood volume of splenectomized dogs.

IV. Estimates of blood volume obtained by adding the volume of blood cells to the volume of plasma are greater than those calculated from the percentage of blood cells in venous blood. To this unaccounted volume of plasma the authors gave the name " extra plasma ". They estimated the percentage of blood cells in liver, kidneys and spleen, and the proportion of " extra plasma " in each of these organs.

V. Total blood cell volume estimated by employing the radioactive isotope Fe^{55} agreed with those obtained by employing P^{32}, but the latter isotope was preferred, since estimations were simpler and quicker.

VI. Estimates of total blood cell vol. obtained by injecting a small portion of the animal's blood which had been saturated with carbon monoxide were 12% higher than those obtained by the P^{32} method. The authors discussed the significance of this difference.

VII & VIII. Estimation of the plasma volume by the use of injections of haemoglobin prepared from the animal's own blood, or by injecting human albumin labelled with radioactive iodine (I^{131}) gave the same results as the Evans blue dye (T-1824) method.—R.M.

Stone, E. C., Adams, M. F. & Dickson, W. M. (1953). **Electrophotometric determination of osmotic resistance of ovine erythrocytes.**—*Cornell Vet.* **43**, 3-9. [Abst. from authors' summary.] **2517**

The authors presented some data on the osmotic behaviour of normal sheep r.b.c. The data represented 45 samples from 15 normal sheep over a 2-year period, and could serve as a basis of comparison in future studies of osmotic behaviour of r.b.c. from diseased sheep.

Hendry, E. B. (1954). **The osmotic properties of the normal human erythrocyte.**—*Edinb. med. J.* **61**, 7-24. [Abst. from authors' summary.] **2518**

H. confirmed that normal erythrocytes exhibit slightly different fragilities in solutions of the various alkali halides. He demonstrated that the haematocrit method of determining the relative cell volume of swollen erythrocytes in hypotonic media is quite unreliable owing to compression of the cells under high centrifugal forces.

He determined cell volume by measuring changes in concentration of extracellular materials. It is based on the measurement of changes in the extracellular plasma protein concentration and does not therefore involve high-speed centrifuging of swollen cells. The results obtained indicate that the normal erythrocyte behaves as a perfect osmometer.

De Robertis, E., Paseyro, P. & Reissig, M. (1953). **Electron microscopic studies of the action of thrombin on blood platelets.**—*Blood.* **8**, 587-597. **2519**

The effect of thrombin in causing platelets to disintegrate was studied under the electron microscope. The authors described and illustrated the disintegration. The effect was shown to be quantitatively related to the amount of thrombin present.—G. Fulton Roberts.

Hartmann, R. C. & Conley, C. L. (1953). **Clot retraction as a measure of platelet function. I. Effects of certain experimental conditions on platelets *in vitro*.**—*Johns Hopk. Hosp. Bull.* **93**, 355-369. [Authors' summary modified.] **2520**

Survival of human blood platelets *in vitro* under various experimental conditions was studied by a method for semi-quantitative measurement of clot retraction. Evaluation of the function of clot retraction was considered to be a more reliable measure of platelet survival than other methods because retraction does not occur unless platelets are intact. When platelet-rich plasma containing acid-

citrate-glucose soln. was stored at 20°C., there was progressive decrease in platelet count, but ability to produce clot retraction was lost more rapidly than could be accounted for by numerical decrease in platelets. Nevertheless retraction could be detected after storage for periods longer than 2 weeks. Deterioration of platelets occurred much more rapidly at 37°C. In the presence of the anticoagulant, glass surfaces did not hasten dissolution of platelets as compared to silicone-treated surfaces. Platelets were not agglutinated or destroyed, and the function of retraction was not impaired by red cell agglutinins in high titre or by heavy exposure to ionizing radiation. The ability of platelets to produce clot retraction was totally destroyed by freezing and thawing, provided that clot formation had not occurred at the time of freezing. In the presence of glycerol in appropriate conc., platelets were protected against this destruction by freezing.

HEUSSER, H. (1952). Über die Blutausrüstung des Pferdes und ihre praktische Bedeutung. **[The blood picture of the horse in relation to breed, performance and stamina.]**—*Schweiz. Arch. Tierheilk.* **94**, 463-475. [English, French and Italian summaries.] 2521

The r.b.c. count, Hb. content, and r.b.c. sediment were estimated before and after severe exercise. The results could be correlated with breed, performance and stamina. Typical examples were given.—R.M.

QUIRING, D. P. & BAKER, R. J. (1953). **The equine heart.**—*Amer. J. vet. Res.* **14**, 62-67. 2522

A description of the valves and some other features, with various weights and measures of the hearts of 40 Thoroughbreds and 16 other horses. The hearts of the Thoroughbreds were more symmetrical than those of the others and a comparison of the ratios of surface area to weight indicated that the ventricular capacity of the hearts of the Thoroughbreds was greater. —R. N. SMITH.

I. REYNOLDS, S. R. M. (1954). **Homeostatic regulations of resting heart rate in fetal lambs.** *Amer. J. Physiol.* **176**, 162-168. 2523

II. REYNOLDS, S. R. M. (1954). **Bradycardia in the lamb fetus in response to circulatory distress.**—*Ibid.* 169-174. 2524

I & II. R. studied the heart rate and blood pressure of lambs removed from the uterus of the anaesthetized ewe during the last third of pregnancy by caesarian section, the umbilical vessels being left intact and respiration being prevented. Vagotomy lowered the heart rate, and temporary clamping of the umbilical vessels caused bradycardia only when the vagi were intact. R. discussed the significance of the different nervous mechanisms which control the heart rate in the foetus.—R.M.

DONALD, D. E. & ESSEX, H. E. (1954). **The canine septal coronary artery. An anatomic and electrocardiographic study.** — *Amer. J. Physiol.* **176**, 143-154. 2525

The authors described the normal anatomy of the branch of the coronary artery which supplies the interventricular septum in dogs, and the results of ligating this artery. Following ligation, there was complete atrioventricular block in some dogs and lengthening of the PR interval of the E.C.G. in others. In all cases of ligation, infarction of the septum was observed at P.M. examination.—R.M.

CLARK, C. H. (1953). **The nerve control of rumination and reticulo-ruminal motility.**—*Amer. J. vet. Res.* **14**, 376-384. 2526

Using 54 sheep, 7 goats and 2 cows, the authors studied the effects of vagotomy, decerebration, frontal lobectomy, and intracerebral injections of methanol on the motility of the rumen and reticulum and on rumination. They concluded that a subcortical area of the cerebral cortex anterior to the infundibulum of the pituitary gland was associated with the nervous control of rumination and motility of the rumen and reticulum, and that these functions were not controlled by the medulla.—R.M.

SIMONNET, H., LE BARS, H., STASSIVE, W. & CHAPEVILE, F. (1952). Pharmacologie de l'intestin du cheval. Action de l'adrénaline sur la motricité du duodénum de cheval *in vivo*. **[Action of adrenaline on motility of the duodenum of the horse.]**—*Bull. Acad. vét. Fr.* **25**, 75-82. 2527

The action of adrenaline in the horse—studied *in vivo* in 9 anaesthetized animals by means of a balloon introduced into the duodenum through an enterotomy incision—differed from that shown in the rabbit and varied with individual horses. There was a temporary cessation of peristalsis with an increase in muscular tone lasting about 5 min., or with a slight lowering of muscular tone persisting after peristalsis was re-established.—R. MARSHALL.

BONFANTI, C. (1952). Le ghiandole di Brunner nel cavallo. **[Duodenal glands in the horse.]**—*Riv. Med. vet.* **4**, 95-104. [English, French and German summaries.] 2528

A conventional account of the structure and distribution of the duodenal glands in 13 horses. There are four photomicrographs.—I. MARTINI.

Beakley, W. R., Bligh, J. & Nisbet, W. (1953). **A pneumotachograph for cattle.**—*J. Physiol.* **121,** No. 2. pp. 40P-41P of Proceedings. 2529

A pneumotachograph now in use at the Hannah Dairy Research Institute introduces a back pressure of less than one cm. of water even at the highest respirations and will measure the respiratory rate, respiratory minute volume and presents the respiratory pattern on an oscillograph.—A. Ackroyd.

Cover, M. S. (1953). **The gross and microscopic anatomy of the respiratory system of the turkey. I. The nasal cavity and infraorbital sinus.**—*Amer. J. vet. Res.* **14,** 113-117. 2530

The gross structure of the respiratory system of the turkey resembles in general that of the fowl, but there are minor differences, such as the coiling of the turbinate bones. The arrangement of the sinuses predisposes to the extension of inflammatory processes to the eye or brain. The mucous membrane of the nasal cavity resembles that of the fowl and of mammals, with the addition of numerous simple alveolar mucous glands.—R. N. Smith.

Kubicek, W. G., Kottke, F. J., Laker, D. J. & Visscher, M. B. (1953). **Renal function during arterial hypertension produced by chronic splanchnic nerve stimulation in the dog.**—*Amer. J. Physiol.* **174,** 397-400. 2531

Chronic stimulation of the splanchnic nerve elevated the blood pressure in dogs only for the duration of the stimulation. No statistically significant changes in renal function occurred during the hypertension which was probably produced by vasoconstriction of the splanchnic bed and not by renal ischaemia.—A. Ackroyd.

Park, E. A. & Richter, C. P. (1953). **Transverse lines in bone : the mechanism of their development.**—*Johns Hopk. Hosp. Bull.* **93,** 234-248. [Authors' summary slightly modified.] 2532

A study was made of the natural history of the transverse line from the time of its formation to its final dissolution.

The formation of the transverse line in the long bones of young rats was studied using as a basis the cessation of bone growth produced by feeding a diet of only glucose and thiamine chloride solution. On this diet the rats survive 70–80 days and lose 50–60% of their original weight.

The experimental diet produces a picture in the bones which includes resorbed trabeculae and a greatly narrowed proliferative cartilage plate, encased in a thin layer of bone, thicker laterally. This thin layer is the transverse line.

After the basal state was reached (58 days on diet), in which measurable growth of the proliferative cartilage had ceased, the rats on experimental diets were returned to stock food. They ate this food in large amounts and grew at a rapid rate, more than doubling their weight in 15 days.

After change to recovery procedures, osteoblasts settle on the bony film encasing the cartilage, and produce osteoid so that the line widens; the cartilage plate proliferates and capillaries and osteoblasts grow in through the line into the cartilage, forming normal vertically disposed trabeculae between the cartilage and the line. The line is later broken up by blood vessels and is resorbed. The entire process from the time of the formation of the line to its final dissolution requires slightly more than 25 days.

The line forms because the osteoblasts keep making bone after the cartilage growth has waned or virtually stopped. After the recovery diet is instituted, the line thickens because the osteoblasts make new bone on the pre-existing bony encasement without delay, whereas time is required for the cartilage cells to re-establish their cycle, a sequence beginning with the division and ending in senescence. This cycle must be passed through before the osteoblasts and capillaries can penetrate the cartilage, destroy its cells and form bone on the matrix frame. The thickening of the line ceases when the capillaries and osteoblasts have penetrated the line to form bone beyond. In the rat, the line is then resorbed.

Hublé, J. (1953). **Cartilage growth and differentiation in young fowl as influenced by ethinyl-oestradiol.** — *Acta endocr., Copenhagen.* **13,** 317-324. [In English. Abst. from author's summary.] 2533

In groups of chicks, 1–19 days old, injected i/m with ethinyl oestradiol for 8–9 consecutive days (total dosage 70–700 μg.) the increase in body wt. did not differ from that of a control group injected i/m with 0·1–0·25 ml. olive oil daily for 9 days. In the 19-day-old group given 450 μg. oestradiol over 9 days and in the 11-day-old group given 700 μg. over 8 days the zone of proliferation and of differentiation of cartilage in the long bones of the legs had decreased, the adrenocortical tissue being slightly increased in the latter group but not in the former. The cortical steroids do not appear to interfere with the action of oestrogens on growing and differentiating cartilage. There was

rapid growth of the oviduct, but no wt. changes or gross histological changes in the thymus gland.

WEETH, H. J. & HERMAN, H. A. (1952). **A histological and histochemical study of the bovine oviducts, uterus and placenta.**—*Res. Bull Mo. agric. Exp. Sta.* No. 501. pp. 54. 2534

The authors examined the genital organs from 10 non-pregnant and 8 pregnant cows from 18 months to 12 years old. Small sections were taken from the oviduct, and from the upper, middle and lower parts of the uterine horns. In non-gravid cows sections were taken from the same side as the ovary which contained a developing follicle or corpus luteum.

Macroscopic examination of the reproductive tracts and measurements of foetuses were carried out, the details being given in table form. The results of microscopic and histochemical examination of sections of the oviduct, perimetrium, myometrium, endometrium and placenta were described, together with photomicrographs.

Whenever possible the findings were related to the stage of the oestrous cycle or of pregnancy.—L. C. VAUGHAN.

See also abst. 2535 (book, nutritional physiology).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

OSTHOFF, F. (1950). Untersuchungen von Fleisch essbarer Tiere unter Beiziehung der pH-Wert-Bestimmung, der Eber'schen Probe und der Bleiazetatprobe. [**Value of the lead acetate test, the putrefaction test described by Eber and determination of pH in meat inspection.**] — *Inaug. Diss., Munich.* p. 59. 2535

The author carried out determination of pH, the Eber putrefaction test and the lead acetate test in material from over 600 animals to determine the fitness of the flesh from individuals of 36 animal species, including species of fish, molluscs etc, for human consumption. Determination of pH was of very limited value. The Eber putrefaction test and the lead acetate test proved unsatisfactory.—G. P. MARSHALL.

KEMP, J. D., BULL, S. & TERRILL, S. W. (1952). **The effect of three formulations of benzene hexachloride on the flavour of pork.**—*J. Anim. Sci.* **11**, 491-495. 2536

The flavour of pork from pigs sprayed with commercial preparations of benzene hexachloride, containing 10–90% γ-isomer, was unaffected when the animals were slaughtered not less than a week after spraying. With some preparations the flavour was affected when the animals were slaughtered only one day after spraying.

—CHARLOTTE M. WOOD.

BAPTISTA BRAZ, L. A. L. (1953). A inspecção sanitária de alguns produtos alimentares de origem animal, em Portugal. [**History of meat inspection in Portugal.**]—*Rev. Cienc. vet. Lisboa.* **48**, 80-100. 2537

Prior to the XVIth century, the laws regulating the sale of meat in Portugal were principally designed to ration the limited supplies available (owing to frequent war) and to prevent fraud by false weight and clandestine sales. Public health was considered only during epidemic disease. In 1555 an official was appointed to supervise certain health questions, including plague. Regulations were soon made prohibiting sale of bad meat and fish, and the bringing of dead animals to the slaughter houses or diseased, fevered or ill-nourished ones. In 1854, veterinary surgeons were appointed as sanitary inspectors of abattoirs in Lisbon, and in the following years throughout the country. An efficient service has now been built up.

—R. MACGREGOR.

ROSS, A. I. (1953). **The prevention of food poisoning due to pressed meat products. An investigation into their preparation and suggestions for improvement in their manufacture.** — *Publ. Hlth, Lond.* **66**, 193-200. [Author's summary modified.] 2538

R. presented statistics of outbreaks of food poisoning in England and Wales where meat and pressed meat products acted as a vehicle. He described 4 outbreaks due to *Staph. aureus* (coagulase positive) in pressed meats and gave the results of a survey of the methods used for the preparation of cold meats in the town concerned. In many cases these were satisfactory. Pathogenic organisms, or organisms indicating the possibility of contamination by pathogens, were recovered from specimens from 13 out of 20 premises examined. He described a method for the satisfactory preparation of meat products.

SCRIABINE, K. I. (1953). L'helminthologie en Union sovietique. [**Helminthology in the U.S.S.R.**] — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 425-432. [In French. English and German summaries.] 2539

S. described the organization of helmintho-

logical services in the U.S.S.R. and outlined the progress of veterinary and medical helminthology since the formation in 1920 of the Institute for Experimental Veterinary Science. The Helminthological Service of this Institute has become the Institute of Helminthology, of which the author is director. There are also the Central Laboratory for Helminthology of the U.S.S.R. Academy of Science, and the Institute of Malariology, Parasitology and Helminthology.

The Academy of Science has commenced publication of a 16-volume work on the trematodes of man and animals. Membership of the U.S.S.R. Heminthological Society numbers 300.

S. stated that present policy aims at total extermination of helminth parasites by destruction at all stages of development by all possible methods.—R.M.

REPRODUCTION AND REPRODUCTIVE DISORDERS

Szumowski, P. (1953). Variations de la température à l'intérieur de la bouteille isolante utilisée pour le transport du sperme. **[Variations in the interior temperature of insulated containers used for the transport of semen.]** —*Rec. Méd. vét.* **129,** 1021-1035. 2540

The limits of variation in temperature favourable for prolonged conservation of vitality and fertility of bovine spermatozoa are 0° to 8°C. Variations in the interior temperature of insulated containers used for transport of semen were studied with an electric thermocouple, the findings being given in detail.—W. R. Bett.

Miller, W. J. & Vandemark, N. L. (1954). **The influence of glycerol level, various temperature aspects and certain other factors on the survival of bull spermatozoa at sub-zero temperatures.** — *J. Dairy Sci.* **37,** 45-51. [Authors' summary slightly modified.] 2541

When added slowly to bull semen diluted with yolk-citrate, glycerol (0–30%) had little effect on the percentage of motile sperm during storage at 5°C. No significant difference was observed in sperm survival after freezing when samples were diluted to contain 10, 30, and 90 million sperm per ml. Approx. 7 (6–8) % glycerol resulted in optimum sperm survival after freezing and storing at −79°C. Higher sperm survival rates were attained when samples were thawed in a water bath at 5°C. than at 38°C.

Adding glycerol to semen diluted with yolk-citrate at 4°–5°C. gave slightly better results than adding it at 10° or 15·5°C. Adding the glycerol solution in three equal portions at 10-min. intervals resulted in slightly higher sperm survival after freezing than did making a complete addition at one time. Six hours of equilibration with the glycerol was found to be adequate for optimum survival of bull spermatozoa. Optimum results were obtained when the cooling rate from 5° to −20°C. was between 1·0° and 4·0°C. per min.

Samples frozen and stored at various temperatures between −23° and −79°C. exhibited approx. equal motility when thawed after one hour. However, on storage those maintained at the warmer temperatures (−23° to −51°C.) declined in motility much more rapidly than did those at the colder temperatures.

Beck, S. D. (1953). **Effect of insecticides on the metabolism and motility of mammalian spermatozoa.** — *J. econ. Ent.* **46,** 570-574. 2542

D.D.T., methoxychlor, benzene hexachloride (B.H.C.), aldrin, parathion, malathon and TEPP (tetraethyl pyrophosphate) were tested. All strongly inhibited motility of boar spermatozoa. Only methoxychlor appreciably inhibited oxygen consumption and only B.H.C. inhibited glycolysis.—Beryl A. Kay.

Varadin, M. & Kamhi, S. (1953). Neka zapažanja prilikom umjetnog osjemenjivanja kobila s kontrolom ovulacije folikula. **[Some observations made at the time of artificial insemination of mares.]**—*Veterinaria, Sarajevo.* **2,** 83-92. [In Croat. Abst. from English summary.] 2543

The authors described the findings of *per rectum* examinations of the ovaries in 75 mares, with reference to the optimum time for insemination.—R.M.

Bielański, W., Ewy, Z. & Pigoniowa, H. (1952). Pozion hormonów gonadotropowych w surowicy klaczy źrebnych różnych ras. **[The gonadotrophin serum level of pregnant mares of different breeds.]** — *Roczn. Nauk rol.* **65,** 245-261. [English and Russian summaries. Abst. from English summary.] 2544

The highest concentration of gonadotrophin in the serum of pregnant mares was observed in the Thoroughbred, East Prussian, and Lipitsa breeds (100 I.U. per ml. serum). Next came the Arab breed (75 I.U. per ml. serum) and the Konik, Fjord, and Hutsul breeds (44–52 I.U. per ml. serum). The lowest concentration was observed in the Silesian and cross-bred Gidran

breeds (20–27 I.U. per ml. serum) and the Jutland and Ardennes breeds (16–17 I.U. per ml. serum).—R.M.

GALLO, P., CARRILLO, M. I. & PÉREZ MATHEUS, R. (1952). Contribución al estudia del diagnóstico del embarazo en la yegua utilizando el sapo *Bufo marinus*. Comparación con la prueba de Cole y Hart. [**Pregnancy diagnosis in mares using the Venezuelan toad, *Bufo marinus*.**] — *Rev. Med. vet., Caracas.* **11,** Nos. 3 & 4. 105-120. [English summary.] 2545

An account of pregnancy diagnosis using males of the common Venezuelan toad, *B. marinus* and the technique described by Galli-Mainini, in 62 mares, 61–145 days after service, with parallel tests in female rabbits using the technique described by Cole & Hart. The results were controlled in 28 cases by manual exploration. *B. marinus* was found to be suitable, giving results only slightly less accurate than those obtained with the rabbit test with serum of mares less than 80 days pregnant: after the 80th day the rabbit test was superior. Toads weighing 150 g. were most suitable, 10 ml. of serum injected either dorsally or ventrally producing a reaction within 6–9 hours. The serum of pregnant mares retained its diagnostic activity after storage at 4°C. for 10 days. Details were given concerning the maintenance and feeding of the toads.—F.E.W.

MOITES, J. & SGOURIS, J. T. (1953). **Can the ovarian hormones inhibit the mammary response to prolactin ?**—*Endocrinology.* **53,** 17-23. 2546

Oestrone, 960 i.u., and progesterone, one i.u. daily, together inhibited the stimulative action of prolactin on milk secretion in the mammary glands of rabbits of both sexes, intact and castrate, whereas progesterone alone was ineffective and oestrone alone had only a slight effect. —A. ACKROYD.

FERRARA, B., ROSATI, P. & CONSOLI, G. (1953). Azione degli stilbene sul testicolo. Ricerche sperimentali in *Ovis aries*. [**Action of synthetic oestrogens on the testicle of the ram.**] —*Boll. Soc. ital. Biol. sper.* **29,** 66-67. 2547

Doses of 3–13 mg. stilboestrol were administered daily to each of 4 sheep by parenteral injection until each had received 270–600 mg. of the drug. Testicles were removed for histological examination 7 days after the final injection. The authors observed chromatolysis, atrophy of the seminiferous tubules, and cessation of spermatogensis.—R.M.

FERRANDO, R. & FERNEY, J. (1954). Utilisations zootechniques des hormones sexuelles, chez la brebis. [**Practical uses of sex hormones in sheep.**]—*Rev. Méd. vét.* **105,** 18-28. 2548

The favourable results obtained with the use of sex hormones in sheep in the laboratory have been too quickly publicized, and their practical application has tended to be disappointing. The authors discussed briefly: the oestrous cycle in sheep, out-of-season lambing, and twin pregnancy.—W. R. BETT.

SNAIR, D. W., JAFFRAY, S. E., GRICE, H. C. & PUGSLEY, L. J. (1954). **Studies on the subacute and chronic administration of stilboestrol in the male rat.**—*Canad. J. Biochem. Physiol.* **32,** 41-49. 2549

A linear relationship was obtained when the logarithm of the dose of stilboestrol was plotted against the percentage decrease in weight of the testes. A similar relationship was found for body weight but giving a more gradual slope. A daily dose of 7·5 μg. of stilboestrol caused sterility in the male rat. —P. J. G. PLUMMER.

MOBERG, R. (1954). **Disease conditions in the fallopian tubes and ovarian bursae of cattle.** —*Vet. Rec.* **66,** 87-90. [Author's summary modified.] 2550

M. has examined the genital organs of 1,622 cows (normal abattoir material) and, clinically, 516 sterile cows to determine the frequency of occurrence of pathological changes in the fallopian tubes and ovarian bursae, their location and their type. He considered the great majority of these result from adhesions following haemorrhages of either physiological origin (in connexion with ovulation) or therapeutic origin (uncritical or inefficient manual ovarian treatment). He advises that care should be taken in enucleation of the corpus luteum, and warns against repeated enucleation at short intervals and against allowing the corpus luteum to fall into the ovarian bursa or lie in the pelvic cavity after enucleation. It should be allowed to fall into the peritoneal cavity. Any treatment causing high intra-uterine pressure (large quantities of liquids, large doses of oestrogens, etc.) should be avoided, as should the use of disinfectants lowering the surface tension (invert soaps).

AZIZUDDIN, I. M. (1953). **Studies on bovine endometritis. Hydrogen ion concentration of uterine fluids of the cow.**—*Indian vet. J.* **30,** 202-205. 2551

The pH of uterine fluids collected from Ayrshire cows imediately after slaughter (in Scot-

land) was 6·86–7·28 in 28 cows with normal breeding history, 7·13–8·18 in 27 cows affected with bacterial endometritis, and 6·89–7·00 in four of five cows affected with non-bacterial hypertrophic metritis. The pH of amniotic fluid (seven cows) was 7·00–7·45.—R. N. Mohan.

Heidrich, H. J. (1953). Untersuchungen über das Verhältnis von Blutausrüstung und Blutreserve zu Geburtsablauf und Milchleistung bei Vollblutstuten. [**Relation of blood supply and blood reserve to parturition and lactation in Thoroughbred mares.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2**, Pt. 1. 751-755. [In German. English and French summaries.] 2552

H. attempted to relate the blood reserve, measured by the increase in r.b.c. count during parturition, to the pulse rate, respiration rate, degree of sweating and exhaustion, and duration of labour in 22 Thoroughbred mares. He concluded that the greater the blood reserve, the more favourable the course of parturition. He found no relationship between the daily milk secretion and the r.b.c. count of the mare.

—R.M.

Kondo, K. (1952). **Studies on intersexuality in milk goats.**—*Jap. J. Genet.* **27**, 131-141. [In English. Abst. from author's summary.] 2553

The external genital organs of hermaphrodite goats have various types of abnormality. In most cases, the clitoris projects prominently and resembles the glans penis, the scrotum and body of the penis being absent. In some animals, the clitoris is developed as conspicuously as the penis, and a scrotum is present, but it is malformed, while in others the external genital organ is of the female type. P.M. examination of 101 animals, 5 months to 5 years old, revealed the presence of both Muellerian and Wolffian ducts, their grades of development and differentiation being related to those of the gonads and the secondary sex characters. The gonads were ovotestis in the female type and testis-like in others, with numerous histological deviations between the two.

Calculation of the sex-ratio and the frequency of occurrence in litters yielded data which confirmed that intersex goats are female genetically and the frequency of occurrence of intersex kids with carrier × carrier mating appears to be 12·5%. K. therefore concluded that the gene for intersexuality is autosomal and acts in the female only when homozygous.

Smyth, J. R., Jr. & Leighton, A. T., Jr. (1953). **A study of certain factors affecting fertility in the turkey.**—*Poult. Sci.* **32**, 1004-1013. 2554

The authors observed daily the mating activity of 82 female and 8 male turkeys, over a period of 6 months. The main factors influencing fertility of a flock were the frequency of matings, which was determined by the female, and the ability of the male to complete the mating, which varied in different males. In cases where flock fertility was low, the authors recommended selection of the males by observation of their mating behaviour.—R.M.

Thompson, R. Q., Sturtevant, M. & Bird, O. D. (1953). **Effect of phosphorylated hesperidin and other flavonoids on fertility in mice.** —*Science.* **118**, 657. 2555

The fertility of fertile male and female mice was unaffected when phosphorylated hesperidin, dihydroquercetin, or hesperidin methyl chalcone was incorporated into the diet at a level of approx. 150 mg./day/kg. of body weight before and during the mating.

—A. Ackroyd.

Benoit, J., Assenmacher, I. & Walter, F. X. (1953). Dissociation expérimentale des rôles des récepteurs superficiel et profond dans la gonadostimulation hypophysaire par la lumière chez le canard. [**Light as a stimulant of gonadal function in ducks.**] — *C.R. Soc. Biol. Paris.* **147**, 186-191. 2556

Light appeared to stimulate the function of the testis of the duck through two routes, (a) from the retina *via* the optic nerve, and (b) by penetration to the pituitary gland.

—R. Marshall.

Ten Thije, J. H. (1951). De betekenis der biopsiemethode bij het steriliteitsonderzoek. [**The biopsy method of diagnosis of sterility.**] —*Tijdschr. Diergeneesk.* **76**, 599-603. 2557

Microscopic examination of biopsy samples of uterine mucosa up to one cm. long and one mm. thick from infertile cows and mares revealed that inflammation was much more frequent in cows than in mares. Photomicrographs of the biopsy sections were shown by lantern slides, but were not reproduced in the paper.—C. A. van Dorssen.

Freund, J., Lipton, M. M. & Thompson, G. E. (1953). **Aspermatogenesis in the guinea pig induced by testicular tissue and adjuvants.** —*J. exp. Med.* **97**, 711-726. 2558

G. pigs were injected in the dorsal skin with 0·5 ml. emulsion of 1 mg. killed tubercle bacilli and the dried extract from 260 mg. of

g. pig testis, sometimes taken from the same individual. Aspermatogenesis ensued in all within from 10–25 days, finally even the spermatogonia degenerating. There was no reaction in controls injected with rabbit testis or g. pig kidney, nor in the absence of mycobacteria. Complement-fixing antibodies were demonstrable in the reactors, and there appeared to be some correlation between titre and extent of testicular damage, despite the absence of inflammatory change. Possibly the phenomenon is allergic.—F. L. M. Dawson.

Steyn, D. G. (1954). **Disturbances of mitotic processes and teratism.**—*S. Afr. med. J.* **28,** 1-4. 2559

S. discussed non-hereditary factors which may cause abnormalities during foetal life. He divided them into two groups—vitamin deficiencies and toxic agents (including maternal diseases and conditions which induce anoxia in the foetus). There are 53 references.—R.M.

Stallcup, O. T. & Herman, H. A. (1953). **An acardiac monster from a cow.**—*J. Dairy Sci.* **36,** 1299-1300. [Authors' summary copied *verbatim*.] 2560

A report is given of the history and dissection findings concerning an acardiac monster born twin to a bull calf from a grade Shorthorn cow. The monster was a spherical mass covered with hair. A sagittal section revealed an undifferentiated mass of tissue containing blood vessels, fat and connective tissue.

See also absts. **2166** (bacteriology of air and dust in a maternity hospital); **2178-2180** (*V. fetus* infection); **2237-2241** (salmonellosis in horses); **2252** (brucellosis); **2424** (tumours of the penis in bulls); **2457** (parturient paresis); **2458** (pregnancy disease in ewes); **2462** (heredity and control of infectious diseases); **2584** (report, U.S.A.).

ZOOTECHNY

Asker, A. A., Ragab, M. T., Khany, M. A. (1953). **Some factors affecting heat tolerance of cattle and buffaloes.** [Correspondence.]—*Nature, Lond.* **171,** 1074. 2561

Using the method described by Rhoad [*V.B.* **17,** p. 202], the authors studied the effect of age, lactation and fattening on the heat tolerance of buffaloes, Egyptian cattle and Shorthorn grade cattle. In each group, yearlings had the lowest adaptability coefficient; mature lactating animals were less tolerant than animals 2 years old; fattening had an adverse effect on heat tolerance.—E. A. Gibson.

Chester, R. D. & Howard, K. F. (1952). **The Santa Gertrudis breed of beef cattle and its possible use in Queensland.**—*Qd. Agric. J.* **75,** 288-305. 2562

The authors gave an historical survey of the evolution of this breed at King Ranch, Texas, and included the present-day breed standards as drawn up by the Santa Gertrudis Breeders' International Society. They described the breed and drew attention to its foraging and mothering ability, reactions to high temperatures, resistance to insect pests and rate of growth.

They discussed the possible use of Santa Gertrudis in Queensland. They recommended that Santa Gertrudis sires be either crossed with existing herds for the production of first-cross slaughter animals, or used to grade-up existing herds.—M. C. Franklin.

Pillinger, D. B. & Kelly, J. T. (1954). **Beef cattle investigations at Ross.**—*Tasm. J. agric.* **25,** 5-16. 2563

The authors gave data on the performance of Shorthorn steers reared mainly on pasture in the Midland area of Tasmania. The work is part of an Australia-wide project to measure the growth of cattle under varying conditions of environment and management, to determine the extent and severity of periods of nutritional stress and to indicate how satisfactory growth may be maintained.—M. C. Franklin.

Corbett, J. L. (1953). **Grazing behaviour in New Zealand.**—*Brit. J. anim. Behav.* **1,** 67-71. [Abst. from author's summary.] 2564

C. discussed the value to the pastoral farmer of grazing behaviour studies. He pointed out that an uncritical application to farming practice of results obtained is liable to result in less efficient animal production from grassland because the most favourable environment as judged by an animal's behaviour is not necessarily that which gives optimal animal production.

He quoted data obtained by Hancock [*V.B.* **22,** 2984] on the grazing habits of monozygotic cattle twins and gave some figures from a detailed study of grazing and rumination habits.

The behaviour pattern of these animals is cyclic, showing metabolic, diurnal and seasonal rhythms. C. discussed the effects of various factors — quality and quantity of pasture,

weather, theoretical food requirements, individuality and herd laws—and considered some implications.

Calves at pasture from birth show, from an early age, a cyclic pattern of behaviour similar to that shown by mature cattle.

Observations on grazing behaviour are of particular value if combined with other studies, and also because they indicate further lines of research.

TECHNIQUE AND APPARATUS

VAN DER MAAS, J. C. A. (1952). Application pratique de nouveaux milieux à l'acide pyruvique pour le diagnostic bactériologique de la tuberculose ouverte chez les bovidés. **[A new medium containing pyruvic acid for isolation of *Mycobacterium tuberculosis*.]**—*Bull. Off. int. Epiz.* **37**, 678-683. 2565

The medium described as No. 126, containing pyruvic acid and malachite green, was found suitable for isolating *M. tuberculosis* from lesions in cattle. The author listed its advantages.—W. R. BETT.

OLSEN, E. M. (1951). **On eosin methylene blue agar and eosin methylene blue penicillin agar.** —*Nord. VetMed.* **3**, 681-699. [In English. German and Danish summaries.] 2566

The author discussed the bacteriological chemistry of eosin methylene blue agar and its use in differentiating lactose-fermenting from non-lactose-fermenting bacteria. Modification with penicillin increases the utility of the medium.—JOHN SEAMER.

FULTON, F. (1953). **Techniques for the study of viruses.**—*Brit. med. Bull.* **9**, 186-190. 2567

A review of methods of filtration, centrifugation, microscopy, chemical and antigenic analysis, and tissue culture used in the study of viruses. Photographs of apparatus for serological tests and tissue culture, electron micrographs used in counting techniques, and photomicrographs of tissue cultures are appended.—IAN DAVIDSON.

STROME, C. P. A. (1953). **A closed-vacuum system for harvesting infectious infant mouse-brain material.**—*Proc. Soc. exp. Biol., N.Y.* **84**, 287-288. 2568

S. described an aseptic, time-saving technique for the harvesting of infective brain material from mice up to 12 days old. The apparatus works by sucking the brain tissue through a needle inserted through the occipital foramen. He enumerated the advantages and safeguards of this technique.—W. MANSI.

BRACKETT, F. S., MATTERN, C. F. T. & OLSON, B. J. (1953). **Appraisal of instrument for counting erythrocytes by scatter photometry. With an adaptation for hemoglobin determination.** — *Amer. J. clin. Path.* **23**, 731-745. 2569

The authors tested the use of a photoelectric photometer for the determination of the number of red cells suspended in solution, the instrument used being provided with a device for compensation of variations resulting from the size of the cells. The scatter of light when passed through a suspension of red cells is compared with a similar photocell receiving light scattered by being passed through ground glass. Using a 1:2,000 dilution of erythrocytes, the number of red cells can be read directly from a dial. A second scale gives the haemoglobin content in grammes.—JAS. G. O'SULLIVAN.

COON, W. W., HODGSON, P. E. & HINERMAN, D. L. (1954). **Fundamental problems in jet injection.** — *Amer J. med. Sci.* **227**, 39-45. [Abst. from authors' summary.] 2570

C. studied, in rabbits, and also in a fresh human cadaver, the gross and microscopic lesions produced by the injection of fluids subcutaneously by means of a needle-less " jet " type of syringe to the surface of the skin. No significant difference was noted in the rate of absorption between the " jet " method and the usual method using a (hypodermic) needle i/m and s/c. However, injection by means of a " jet " type of syringe produced definite tissue damage which, in part, proved to be irreversible, and the authors therefore concluded that the " jet " syringe employed was unsafe for clinical use.

GLIGORIJEVIĆ, J. (1952). **[Intra-oral radiography of the horse's teeth.]** — *Acta Vet., Belgrade.* **2**, No. 2. pp. 37-49. [In Serbian. German summary.] 2571

G. described a technique for dental X-ray examination in horses. The mandibular, lingual and hypoglossal nerve trunks are blocked, and the films, set in a rubber container, are then applied against the lingual surface of the teeth to be examined.—I. MARTINI.

MISCELLANEOUS

CHURCHILL-DAVIDSON, H. C., MCMILLAN, I. K. R., MELROSE, D. G. & LYNN, R. B. (1953). **Hypothermia. An experimental study of surface cooling.**—*Lancet.* **265,** 1011-1013. [Authors' summary modified.] 2572

From this study in 30 dogs, given also premedication though no surgical operation was performed, certain tentative conclusions may be drawn for the use of hypothermia in surgery:—

The particular method used to lower body-temperature is not of great importance, but surface cooling is the simplest. Until some method is found of preventing ventricular fibrillation, the body-temperature should not be reduced below 26°C., and in all cases in which hypothermia is used continuous electrocardiograms should be displayed. Hypothermia may offer an advance in surgery for operations requiring temporary occlusion of the great vessels, but the increased "irritability" of the cardiac muscle at temperatures of 25°C. and below is the chief risk of operations on the heart under these conditions. The age of the animal is of particular importance, for the younger the animal the greater the margin of safety.

TODD, F. A. (1953). **The veterinarian in civil defence.** — *Canad. J. comp. Med.* **17,** 338-343. 2573

In addition to the diseases usually considered as potential biological warfare agents, native diseases must not be overlooked as they might cause as much damage as a foreign plague if allowed to run unchecked.

—R. GWATKIN.

I. DA SILVA MOUSINHO DE FIGUEIREDO, J. M. P. (1953). Projet de convention pour le trafic international des animaux exotiques et de statut y relatif. **[Suggested convention governing international trade in animals for zoological parks.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 385-398. 2574

II. VOGLER, M. (1953). Contrôle du commerce des animaux exotiques destinés aux jardins zoologiques. **[Control of trade in animals for zoological parks.]**—*Ibid.* pp. 399-403. [English summary.] 2575

I. The author suggested that the contracting governments in a proposed convention concerning international trade in animals for zoological parks should form a commission to study the problem of such trade. He presented a draft for such a convention.

II. The author laid down suggestions for rules to be followed in order to prevent the importation of tropical contagious diseases into Europe by exotic animals destined for zoological parks.—D. S. RABAGLIATI.

MELENDEZ, R. D. [Edited by.] (1949). **Spanish and English glossary of dairy and related terms.** pp. 47. Washington, D.C.: Dairy Industries Society, International. 2576

This booklet is a glossary of terminology commonly used in the dairying industry, in English-Spanish and Spanish-English. The value of the list lies in the specialized words and phrases included, many of which would not be found in standard dictionaries.—E.V.L.

See also absts. **2162** (staphylococcal food poisoning in man); **2181** (aerobic spore-forming bacteria in foods of animal origin); **2473** (poisoning in game with rat poison); **2474** (chemical aspects of chlorine dioxide interaction with flour).

REPORTS

GREAT BRITAIN. (1953). **Twenty-sixth annual report of UFAW (The Universities Federation for Animal Welfare), 1st October, 1951 to 30th June, 1952.** pp. 28. Tunbridge Wells, Courier Co. Ltd. 2577

Although the year under review was a short one, much work appears to have been achieved. Outstanding items have been the publicity given to the electric stunning of pigs, the conditions requisite for ensuring humaneness, the second reading in the House of Lords of the Spring Traps Bill, the formation of a Students' branch in Berlin and a linkage between UFAW and representatives of Animal Welfare Institutes of America.

Research was instituted on the life history of the otter and great attention has been given to the welfare of laboratory animals, including the handling of sheep for the production of vaccine lymph. The report indicates the close touch the Federation keeps with other similar organizations all over the world.—D. S. RABAGLIATI.

GREAT BRITAIN. (1953). **Report of the Ministry of Health for the year ended 31st December, 1952. Part I. 1, The National Health Service (including a chapter on international health). 2, Welfare, food and drugs, Civil Defence.** pp. 186. London: H.M. Stat. Off. 5s. 2578

Three hundred and fifty-three notices were served by medical officers of health under Section 20, of the Milk and Dairies Regulations, 1949, in respect of milk infected or suspected of being infected with disease communicable to man. Of these, 254 related to tubercle bacilli, 87 to *Brucella abortus* and 12 to other infections. The arrangements for heat-treatment of the milk on premises on which notices had been served, worked smoothly.

No quick and reliable test for *Br. abortus* in the mixed milk of a herd has been evolved. Experiments are being carried out with the ring test on herd milk to facilitate the detection of *Br. abortus* in the herd and the identification of the affected cows. It is still not known how far the previous vaccination of the animals disturbs this test.—D. S. RABAGLIATI.

CANADA. (1953.) **Department of Agriculture. Report of the Veterinary Director General for the year ended March 31, 1952.** [CHILDS, T.] pp. 69. Ottawa: Queen's Printer & Controller of Stationery. 2579

There was no ANTHRAX, GLANDERS, DOURINE, FOWL PLAGUE or SHEEP SCAB. F. & M. DISEASE occurred and was eradicated. One or more outbreaks of HORSE MANGE, CATTLE MANGE, SCRAPIE, RABIES, SWINE FEVER, TRYPANOSOMIASIS, NEWCASTLE DISEASE and FOWL TYPHOID are reported. Of a total of eight and a half million cattle, 6,475,694 are under test for TB. Fifty-two permits for the importation of bull semen were issued during the year. A table gives the progress of eradication of animal contagious diseases from 1910 to 1952. An extensive table under the Meat Inspection Section gives the number and causes of condemnation of carcasses and parts for the fiscal year 1951-52.—R. GWATKIN.

INDIA. (1952). **Annual Administration Report of the Department of Animal Husbandry and Veterinary Science, Bombay State for the year 1950-51.** Bombay: Govt. Central Press. 3s. 6d. 2580

Two hundred and fifty-four hospitals and dispensaries were functioning in 28 districts with seven Divisional Veterinary Officers to supervise the field work; 528,588 cases were treated. Deaths from contagious diseases included: ANTHRAX 472; HAEMORRHAGIC SEPTICAEMIA 10,456; BLACKLEG 5,702; and RINDERPEST 7,638. Immunizations against ANTHRAX totalled 21,439; against HAEMORRHAGIC SEPTICAEMIA 434,720; BLACKLEG 367,678 and RINDERPEST 507,459. A virulent form of disease which caused 16,827 deaths among sheep and goats was later diagnosed as RINDERPEST.

The Serum and Vaccine Institute produced and supplied 511,150 doses of HAEMORRHAGIC SEPTICAEMIA vaccine and 210,100 doses of BLACKLEG vaccine.

Schemes were started for the supply of milk to the cities of Poona, Ahemdabad and Hubii from the suburban and rural areas. Of 240 samples of milk from cases of MASTITIS, 119 yielded streptococci, 64 *Corynebact. pyogenes* and 11 staphylococci. Of 598 animals tested with mallein, 9·7% were reactors.

—C. SEETHARAMAN.

BERMUDA. (1952). **Report of the Department of Agriculture for the year 1951.** pp. 31. Bermuda: Bermuda Press Ltd. [Report of Chief Veterinary Officer (E. R, Earl) pp. 21-25.] 2581

The resources of the Veterinary department were concentrated chiefly on the control of TB. and BRUCELLOSIS.—G. B. S. HEATH.

BRITISH HONDURAS. (1953). **Report of the Department of Agriculture for the year ended 31st December, 1951. Part I. Agriculture in the Colony.** pp. 14. 2582

The general standard of management of cattle continues to be low. A permit system controlling the slaughter of female cattle was introduced in August and has already reduced the percentage slaughtered. The total cattle population is given as 15,644 and 3,226 were slaughtered during the year. Apart from a form of ULCERATIVE STOMATITIS no serious disease exists.

There are few sheep owing to local prejudice. The number of pigs slaughtered totalled 5,828; the total pig population is not given.—D. S. RABAGLIATI.

NORWAY. (1953). Veterinaervesenet 1950. **[Report of the Norwegian State Veterinary Service 1950.]** pp. 117. Oslo: H. Aschehoug & Co. 2583

Elaborate statistics are given of practically all diseases occurring in horses, cattle, sheep goats, pigs, dogs, rats, fowls, foxes, reindeer and other animals in over 70 pages of tables. The number of qualified veterinary surgeons, details of the results of meat inspection and the annual report of the Veterinary Institute are included.—H. BOYD.

U.S.A. (1953). **University of Florida. Annual report of the Agricultural Experiment Stations for the fiscal year ending June 30, 1952.** pp. 310. Gainsville, Florida: The University.

[Veterinary Science pp. 134-140; Animal Husbandry pp. 66-74.] 2584

Research in animal husbandry and nutrition was expanded in beef cattle, pigs, meats and mineral nutrition. The demand for knowledge of the copper and molybdenum content of pasture forages has necessitated innumerable analyses.

Several diseases of livestock have been identified for the first time, and others are assuming greater importance, such as Anthrax, Vibrionic Abortion and Sterility and Stringhalt, Photosensitization and Leptospirosis of beef and dairy cattle, Swine Erysipelas, Virus Pneumonia and Mange in pigs and Infectious Bronchitis, Trichomoniasis, Newcastle Disease and Air-Sac Disease of poultry. Other research includes the control of liver fluke in cattle and of other internal and external parasites.—D. S. Rabagliati.

BOOK REVIEWS

Lenkeit, W. (1953). Einführung in die Ernährungsphysiologie der Haustiere. **[Introduction to the physiology of nutrition in domestic animals.]** pp. vii+266. Stuttgart: Ferdinand Enke. DM 24 & DM 26. 2585

This outline of nutritional physiology intended for students of agriculture and veterinary medicine comprises six main chapters covering aspects of nutritional physiology in the resting animal, in reproduction and foetal life, in growth, lactation and in muscular exertion. It is based on lectures at Göttingen University where the author is professor of animal physiology and nutrition. There are 37 illustrations in the text, mainly diagrams, and 92 tables. After each main chapter there is a useful list of references.

This little book should be of considerable value as an introductory manual. It is well indexed and the general presentation is very good.—E.G.

Bensley, E. H. [Director, Department of Metabolism and Toxicology, The Montreal General Hospital.] & Joron, G. E. (1953). **Handbook of treatment of acute poisoning.** pp. 201. Montreal: Renouf Publishing Co., Ltd. $2.50. 2586

This is a convenient pocket book of reference written for use by medical practitioners.

Short introductory chapters on the basic principles and methods of treatment are followed by sections dealing concisely with the detailed treatment of the various types of poisoning. A short chapter is devoted to listing the items required in an emergency poison kit. There is a short bibliography and an index.—A.S.

Hadley, F. B. (1954). **Principles of veterinary science.** pp. xii+546. Philadelphia & London: W. B. Saunders Co. 5th Edit. [Crown 8vo.] 27s. 2587

The author designed his book for agricultural students and practical stockmen rather than for professional veterinary students, and he is therefore concerned largely in giving an account of what an intelligent non-veterinarian might wish to know, dealing particularly with food-producing domestic mammals. A distinction is drawn between " veterinary medicine " and " veterinary science ", but broadly speaking the subjects dealt with fall within the limits of the syllabus of veterinary schools in Great Britain. The more practical aspects of the subject are stressed, the viewpoint naturally being American. To write a textbook of this kind is a difficult and ambitious task, and the author has succeded in presenting a wide-ranging and interesting account. Although the book is not detailed enough for a textbook for veterinary students, the author caters for a high standard of reader, and some of the questions for review at the end of the chapters are quite searching.

The first part deals with the anatomy and physiology of the various body systems, and the various products derived from them are mentioned (an interesting piece of information is that " gallstones are used for an unknown purpose in the Orient, and have brought as much as 350 dollars per pound "!). The second part of the book deals with the prevention, detection and control of animal diseases, and the role and field of activity of the veterinary surgeon is constantly brought out—the book is not a " home doctor " of a crude type. Chapters refer to poisons and poisoning, veterinary obstetrics, and meat and milk hygiene. There are a few things to criticize—for example sometimes it is not clear to which species of animal a given fact relates, and the statement on page 38 about " ossification " being a replacement of the primitive membranous and cartilaginous skeleton with calcium salts needs revising. There are a number of good illustrations, none the worse for being borrowed, and the paper and binding are also good.

—E. Cotchin.

Reinhardt, R. (1953). Die Geschichte der ehemaligen Tierärztlichen Hochschule zu

Stuttgart. **[History of the former veterinary college at Stuttgart.]** pp. 34. Stuttgart: Ferdinand Enke. DM 4. **2588**

This is a brief outline of the history of the former veterinary school of Stuttgart from its foundation by William I. of Prussia in 1821 until it was abandoned in 1913 for reasons of economy.

Among its graduates are distinguished names like Fröhner, von Ostertag, Nieberle and Waldmann.—E.G.

ANON. (1953). Les périodiques médicaux dans le monde. **[World medical periodicals.]** pp. xvi+237. Paris: United Nations Educational, Scientific and Cultural Organization; Geneva: World Health Organization. **2589**

This book contains a list of nearly 4,000 current medical and veterinary journals and also of medical journals which ceased publication during the period 1900-1950. Each entry gives the title, place of publication, the number of issues *per annum* and the *World List* abbreviation of the title.

There are subject and country indexes.

—E.V.L.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

COATNEY, G. R., COOPER, W. C., EDDY, N. B. & GREENBERG, J. (1953). **Survey of antimalarial agents. Chemotherapy of *Plasmodium gallinaceum* infections; toxicity; correlation of structure and action.** Public Health Monograph No. 9. pp. viii+323. Washington, D.C.: Federal Security Agency, Public Health Service, U.S. Government Printing Office. $1.25.

OLSZEWSKI, J. & BAXTER, J. (1954). **Cytoarchitecture of the human brain stem.** pp. 199. Basle & New York: S. Karger. Swiss Fr. 72.80. [In English.]

PRATT, R. & DUFRENOY, J. (1953). **Antibiotics.** pp. xv+398. Philadelphia, London & Montreal: J. B. Lippincott Co. 2nd Edit. 60s.

SOULA, L.-C. (1953). Précis de physiologie. **[Précis of physiology.]** pp. 1100. Paris: Masson et Cie. 2nd Edit. Fr. 2900 & 3500.

YOUMANS, G. P., DOUB, L. & YOUMANS, A. S. (1953). **The bacteriostatic activity of 3500 organic compounds for *Mycobacterium tuberculosis* var. *hominis*.** Review No. 4. pp. v+713. Washington, D.C.: Chemical-Biological Coordination Center, National Research Council. $5.00.

ANON. (1953). **The determination of adrenocortical steroids and their metabolites.** Memoir No. 2. Proceedings of a conference held by the Society for Endocrinology at the Medical Society of London, on 21 May, 1953. [Edited by: ECKSTEIN, P. & ZUCKERMAN, S.] pp. vi+91. London: Dennis Dobson. 12s. 6d.

ANON. (1954). **Autotrophic micro-organisms.** Fourth Symposium of the Society for General Microbiology, held at the Institution of Electrical Engineers, London, April, 1954. [Edited by: FRY, B. A. & PEEL, J. C.] pp. viii+305. London: Cambridge University Press. 25s.

ANON. (1952). **Carbohydrate metabolism. A symposium on the clinical and biochemical aspects of carbohydrate utilization in health and disease.** [Edited by: NAJJAR, V. A.] pp. 134. Baltimore: The Johns Hopkins Press; London: Geoffrey Cumberlege, Oxford University Press. $4.

ANON. (1954). **Veterinary drug encyclopedia and therapeutic index. A listing of veterinary drugs, biologicals and foods of American manufacturers.** [Edited by: STEPHENSON, H. C. & MITTELSTAEDT, S. G.] pp. 239. New York: Drug Publications, Inc. 2nd Edit. $5.

ANON. (1954). **Insecticides and colonial agricultural development.** Proceedings of the Sixth Symposium of the Colston Research Society held in the University of Bristol, March 23rd-27th, 1953. [Edited by: WALLACE, T. & MARTIN, J. T.] pp. x+169. London: Butterworths Scientific Publications. 30s.

ANON. (1954). Gli Istituti Zooprofilattici Sperimentali e l'Istituto Sperimentale Italiano "Lazzaro Spallanzani". **[Italian veterinary research institutes. An account of their work.]** pp. xiii+376. Rome: Alto Commissariato per l'Igiene e la Sanità Pubblica.

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ERRATA

V.B. **24,** abst. 30, p. 5, line 4 of title. The paging should read: 579-584.

Ibid. abst. 1967, p. 318, line 3 of title. The paging should read: 499-502.

Ibid. abst. 1987, p. 321. The copper content of the blood was erroneously stated in terms of milligrammes, whereas it should have been microgrammes. For mg. in lines 4 and 5 of the abstract, please read μg.

Ibid. absts. 2273 and 2274, p. 363. For JACOTOT, J., please read: JACQUET, J. The same change should be made in the Author Index, second page, col. 1, line 14 from below.

List of Abbreviations

A.I.	— artificial insemination
ant.	— anterior
A.P.F.	— animal protein factor
approx.	— approximately
aq.	— aqueous
av.	— average
B.A.L.	— British anti Lewisite (2,3 dimercaptopropanol)
b.p.	— boiling point
c.f.	— complement fixation
clin.	— clinical
coeff.	— coefficient
conc.	— concentration
c.s.f.	— cerebrospinal fluid
diam.	— diameter
dil.	— dilute(d)
E.I.A.	— equine infectious anaemia
equiv.	— equivalent
ft.	— foot (feet) [measurement only]
Hb.	— haemoglobin
H.I.	— haemagglutination inhibition
inj.	— injection(s)
insol.	— insoluble
Inst. (inst)	— Institute
i/m	— intramuscular(ly)
i/p	— intraperitoneal(ly)
i/v	— intravenous(ly)
i/d	— intradermal(ly)
lab.	— laboratory (-ories)
max.	— maximum (-al)
N.D.V.	— Newcastle disease virus
N.D.	— Newcastle disease
r.b.c.	— red blood corpuscles
r.e.s.	— reticuloendothelial system
R.H.	— relative humidity
s/c	— subcutaneous(ly)
soln.	— solution
suppl.	— supplement(s) (-ary)
std.	— standard
temp.	— temperature
therap.	— therapeutic
U.V.	— ultra-violet
vet.	— veterinary
vol.	— volume
w.b.c.	— white blood corpuscles
wt.	— weight
/	— per (*e.g.* wt./vol.; mg./lb. body wt.)

ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals* published in the years 1900-1950, 3rd Edit. (1952). London : Butterworths Scientific Publications.

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Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

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